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ABSTRACT

Data are presented in support of the validation of the competency-based basic skills curriculum which was implemented in the District of Columbia Public Schools in 1978-79. Strategies for conducting the validation are outlined in detail, including review of tests used, orientation of participants, integration of curricular hierarchies, and development of teaching methods. A description of overall data processing activity is included, as well as codes for each objective in the instructional sequence: language arts--prekindergarten-grade 9: and science--grades 1-9. Tables describing the number of students attempting and mastering each objective are included, as are charts illustrating the hierarchical relationships between objectives, and questionnaires used for data collection. The summary chapter indicates that the language arts/English and science curricula are sound, useful, and appealing: and that the validation model is effective, applicable, and worthy of being replicated. (GDC)

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DISTRICT of COLUMBIA
PUBLIC SCHOOLS

THE DESIGN AND IMPLEMENTATION OF THE VALIDATION OF THE COMPETENCY-BASED CURRICULUM IN LANGUAGE ARTS/ENGLISH AND SCIENCE

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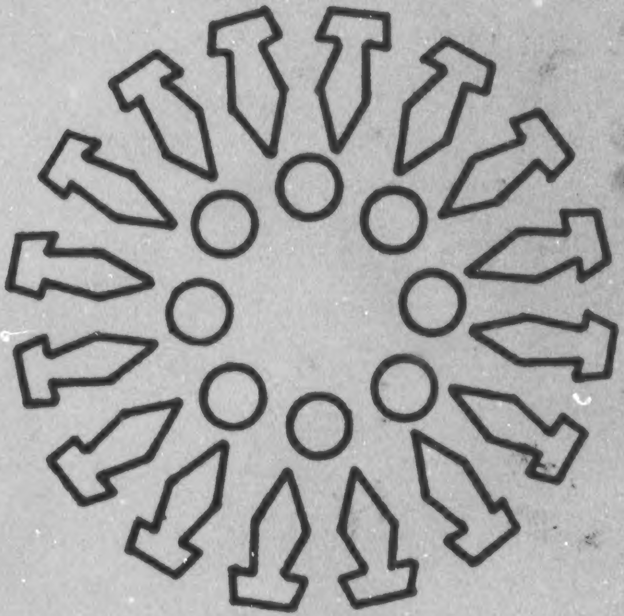

YEAR TWO

VINCENT E. REED
SUPERINTENDENT OF SCHOOLS
OCTOBER 1979

DISTRICT OF COLUMBIA PUBLIC SCHOOLS

THE DESIGN AND IMPLEMENTATION OF THE VALIDATION OF THE COMPETENCY-BASED CURRICULUM IN LANGUAGE ARTS/ENGLISH AND SCIENCE

Prepared by
DIVISION OF RESEARCH AND EVALUATION

OCTOBER 1979

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CHAPTER I. INTRODUCTION

The acquisition by students of learning skills and competencies has been a focus of public education throughout the years. Recently, great concern has been expressed by educators, parents and others relative to the general decline in student achievement levels. In an effort to reverse this decline and assure that students would, in fact, acquire the desired skills, the District of Columbia Public Schools undertook an innovative approach to education. This approach was called the Competency-Based Curriculum (CBC).

A. Overview of the Competency-Based Curriculum

The competency-based curriculum (CBC) developed by the D.C. Public School System is an individualized, progressive, sequential instructional program based on the use of specific behavioral objectives for which criterion levels of performance have been established. The attributes of the CBC approach are summarized as follows:

1. Individualized curriculum: Each student utilizes an instructional plan developed, in consultation with his teachers, to suit his/her needs, rate of growth, and learning style.
2. Progressive curriculum: The CBC, as developed by the D.C. Public School System, follows an educational structure comprised of a continuum of learning, spanning pre-kindergarten through grade twelve. Thus, a student follows a hierarchy of learning tasks and behavioral objectives across several present grade designations. Each level is designed to lead to the level above it in terms of complexity and required skills mastery. The individual's developmental level, rather than grade level assignment, determines a student's course work.

3. Sequential curriculum: The sequence of behavioral objectives is arranged in a hierarchy, which is followed by the student to reach a specified terminal objective, or mastery level. Students enter the learning hierarchy "competency level" based on a pre-assessment of their skills level in a particular curriculum.
4. Incorporation of behavioral objectives: From the onset of the learning process, each student is informed which objectives are to be accomplished in order to demonstrate mastery of the material. Each of these behavioral objectives is accompanied by two specific instructional activities, designed to exercise the student in the skill to be mastered. Finally, three assessment tasks, structured to require demonstration of the student's mastery, are administered. Based on the outcome of this assessment the student either progresses to the next objective or cycles back through the current objective with a modified set of instructional activities.
5. Use of criterion levels of performance: Setting goals and objectives is of little utility if no observable metric of achievement is available. Therefore, each assessment task has a specified level of mastery, above which the student "succeeds" at mastering the objective and below which a recycling through the learning process is indicated.
6. Ability to function successfully in life roles: The ultimate goal of the CBC approach is to facilitate students' active participation in society and, as a corollary, to develop a positive self-concept requisite to such functioning.

In addition to these student outcomes, it is also expected that teacher education programs will provide CBC training, school system personnel will have measurable proficiencies in support of student progress, and the community and parents in particular will have a clearer understanding of what is expected of their children and will, thereby, be in a more favorable position to provide firsthand assistance to learners.

The CBC approach to education is structured to include four major components:

1. A behavioral objective specifying the skill to be demonstrated by the student;
2. Instructional activities designed to provide the necessary experiences to enable the student to achieve the objectives;
3. Assessment tasks structured to allow the student to demonstrate mastery of the objective; and
4. A learning hierarchy comprised of progressively more difficult behavioral objectives, all of which lead to a terminal objective.

B. The Development of CBC

A Curriculum Advisory Committee was appointed by the Superintendent of Schools during the 1975-1976 school year. The group composed of teachers, regional staff, supervising directors, Washington Teachers' Union and Council of School Officers representatives, and Central Office administrators developed "A Design for Competency-Based Curriculum, Pre-K through 12," which was subsequently presented to the Superintendent in April 1976. Approval of this document committed the school system to a CBC approach. The Curriculum Advisory Committee was enlarged and divided into three functional teams: the CBC Coordinating Team to provide overall leadership and direction in CBC for the school system; the CBC Instructional Support Team to develop a team approach to improving the quality of teaching and learning in the schools and classrooms; and the CBC Implementation Team responsible for facilitating the implementation of CBC - related activities and for mobilizing systemwide expertise and resources.

One of the first CBC-related educational activities initiated was a three-day seminar held in late Spring of 1976 for team members and key school system personnel. Two leading experts in the field of competency-based education, Dr. Henry W. Walbessar and Dr. William G. Spady, were consultants for the seminar.

After subsequent orientation and training sessions a three-year design for CBC implementation was drafted. The 1976-1977 school year was designated as the "Year of Awareness" with emphasis on providing all school personnel with a complete understanding of the CBC concept. The 1977-1978 school year was designated as the "Year of Commitment" and 1978-1979 the "Year of Implementation."

Other highlights in the developmental process included the following:

- During the Summer of 1976, handbooks for different "user groups" - administrators, supervisors, teachers, etc. - were developed, disseminated and discussed.
- Early in September 1976, a general orientation session was held for all teachers and administrators to clarify the purpose of CBC and the current procedures being employed.
- The Division of Research and Evaluation (DRE) began evaluating the CBC staff development activities.
- Awareness workshops were held throughout the 1976-1977 school year.
- CBC teams were established in every school.
- Surveys were conducted by DRE to determine needs in the CBC awareness program by school and to determine progress and success of the awareness programs.

- Two in-service CBC courses were provided for teachers and curriculum writers during the Summer of 1977 and subseqently CBC materials were developed in four subject areas: Reading, Mathematics, Language Arts/English, and Science.
- Pilot Schools were selected to validate the newly developed materials during the 1977-1978 school year.
- The final report "The Design and Implementation of the Validation of the Competency-Based Curriculum in Language Arts/ English and Science," dated June 1978 was disseminated.
- New curriculum materials were developed during the Spring and Summer of 1978. The validated materials were rewritten and/or revised as needed based on the validation findings and feedback. All of these materials, old, new, and revised, were readied for the 1978-1979 school year (second year) validation effort.

CHAPTER II. VALIDATION DESIGN AND DEVELOPMENT

An integral phase of implementing a new educational approach in a large urban school system is the conduct of various assessment activities designed to determine, prior to full-scale implementation, the efficacy of that approach. Assessment activities relevant to implementation of CBC in the District of Columbia Public Schools included validation of the competency-based curriculum materials and monitoring of CBC implementation.

A. School Year 1977-1978

The first validation effort was undertaken during the school year 1977-1978. The newly developed curriculum materials in reading, mathematics, language arts/English and science were validated.

In the first two of these areas, reading and mathematics, the D.C. Public Schools already had structured sets of objectives and criterion-referenced tests to measure them. These tests, the Prescriptive Reading Test (PRT) and the Prescriptive Mathematics Test (PMT), had been developed by the D.C. Public Schools and CTB/McGraw-Hill in 1971 and 1973, respectively. In order to make full use of the PRT and PMT data for validation of the new CBC materials, it was decided that CTB would validate the reading and mathematics curricula materials. Responsibility for the validation of the language arts/English and science curricula materials was assigned to the Division of Research and Evaluation (DRE) in the Summer of 1977. [1]

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[1] The final validation report "The Design and Implementation of the Validation of the Competency-Based Curriculum in Language Arts/English and Science" dated June 1978 is available in the Division of Research and Evaluation, D.C.P.S.

A Validation Design Group (VDG) was established for the purpose of developing a model for validation including strategies and instruments. The model developed by the VDG and presented in Figure II-1 outlined tasks in three primary activity areas:

Validation Design and Development

- Assignment of tasks
- Development of validation strategies
- Design and pretest of instruments
- Design of pilot test sample
- Review, revision, and dissemination of curriculum materials
- Design and provision of orientation for pilot test participants
- Conduct of staff development activities
- Design of continuing validation plan

Conduct of the Validation

- Data collection in Pilot Schools
- Classroom observations
- Interface with participants
- Maintenance of quality control
- Periodic provision of feedback information

Processing and Analysis of Results

- Development of analysis plan
- Development of reporting schema
- Development of computer programs
- Processing and analysis of data
- Provision of information for curriculum modifications as needed
- Reporting

B. School Year 1978-1979

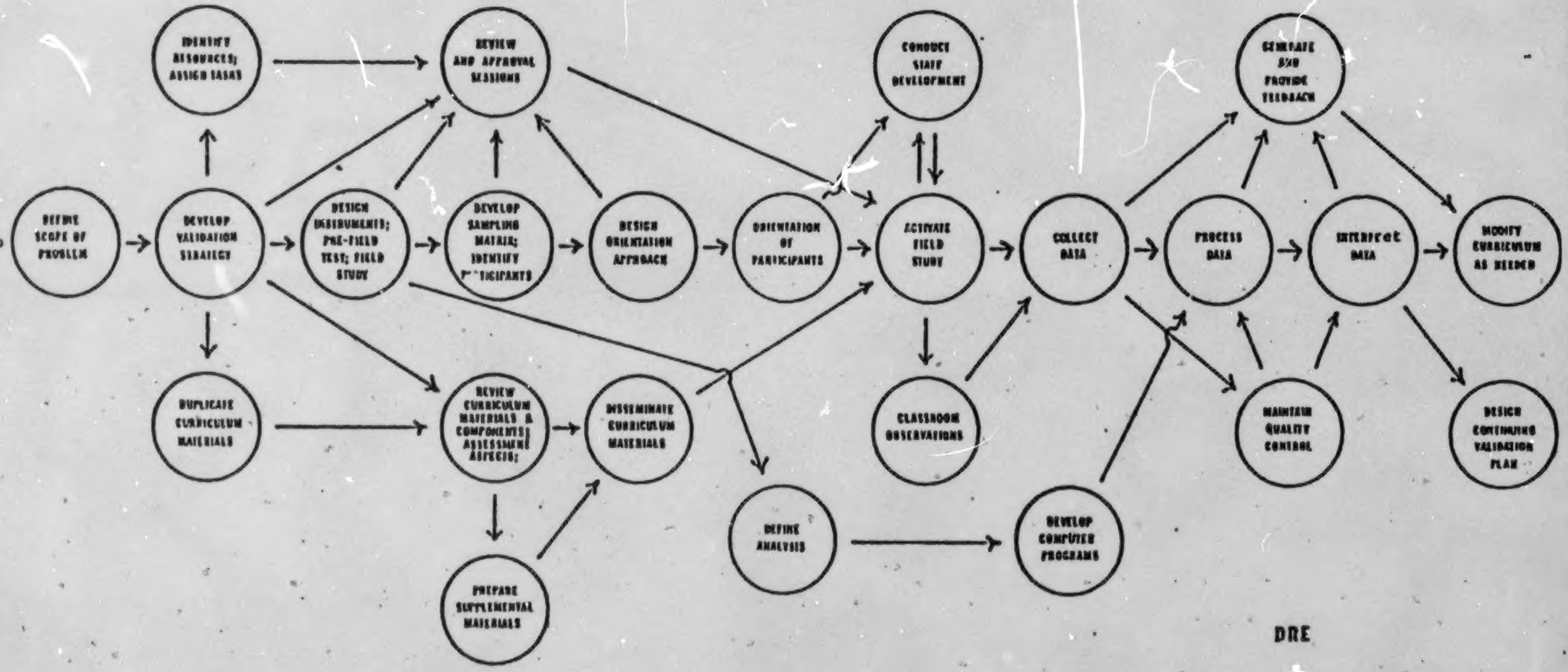
The VDG was reconvened in late Summer of 1978 to plan for the second year of validation. The validation model (Figure II-1) developed and tested the previous year was approved for reimplementation without change.

The strategies developed and used to conduct the initial validation effort were updated for 1978-1979. Tasks were specified and responsibilities

FIGURE II-1

CBC CURRICULUM VALIDATION

CONTENT VALIDATION MODEL FOR LANGUAGE ARTS/ENGLISH AND SCIENCE


DEFINE SCOPE OF PROBLEM
DEVELOP VALIDATION STRATEGY
IDENTIFY RESOURCES; ASSIGN TASKS
DUPLICATE CURRICULUM MATERIALS
DESIGN INSTRUMENTS; PRE-FIELD TEST; FIELD STUDY
REVIEW AND APPROVAL SESSIONS
DEVELOP SAMPLING MATRIX; IDENTIFY PARTICIPANTS
DESIGN ORIENTATION APPROACH
REVIEW CURRICULUM MATERIALS & COMPONENTS; ASSESSMENT ASPECTS;
DISSEMINATE CURRICULUM MATERIALS
PREPARE SUPPLEMENTAL MATERIALS
ORIENTATION OF PARTICIPANTS
DEFINE ANALYSIS
CONDUCT STAFF DEVELOPMENT
ACTIVATE FIELD STUDY
CLASSROOM OBSERVATIONS
COLLECT DATA
DEVELOP COMPUTER PROGRAMS
PROCESS DATA
GENERATE AND PROVIDE FEEDBACK
MAINTAIN QUALITY CONTROL
INTERPRET DATA
MODIFY CURRICULUM AS NEEDED
DESIGN CONTINUING VALIDATION PLAN

DRE

were assigned with very little change from the previous year. New task completion schedules were established. The tasks, responsibilities, and new completion schedules are shown in Table II-1.

1. Instrumentation. The validation instruments used in the first year of validation were reviewed and assessed for their appropriateness for continued usage. Some changes in format and procedures were made.

a. Curriculum Material Review Checklist. The checklist was designed to permit evaluation of the language arts/English and science curricula prior to the field test in the Pilot Schools in 1977-1978. For the new materials that were developed for 1978-1979 and for the revision of the 1977-1978 materials the curriculum writers used the checklist during the writing and revision process. The checklist served:

- To insure that each behavioral objective was written correctly in that it stated WHO was to perform, WHAT was to be performed, the CONDITIONS under which performance was to occur, and the CRITERION for successful performance;
- To insure that, for each behavioral objective, at least two instructional activities were included to provide alternative approaches to learning.
- To insure that, for each behavioral objective, at least three assessment tasks were included and that each called for behaviors to be exhibited that were stated in the behavioral objective;
- To insure that the criteria for acceptable performance were clearly stated in each assessment task and that the criteria were consistent with those stated in the behavioral objectives; and
- To insure that each learning hierarchy included an entry level objective, enabling objectives, and a terminal objective.

TABLE II-1

CBC CURRICULUM VALIDATION STRATEGIES
for
LANGUAGE ARTS/ENGLISH AND SCIENCE
1978-79

MAJOR TASKS	Responsibility of	(MONTH-WEEK) TIME FRAME - 1978-79																																							
		Aug.				Sept.				Oct.				Nov.				Dec.				Jan.				Feb.				Mar.				Apr.				May			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Assign Task of CBC Curriculum Validation	Supt's Office				X	X																																			
2. Define Problem	CBC Coordinating Team				X	X																																			
	Res. & Eval. Division				X	X																																			
	Consultants				X	X																																			
3. Identify Resources	CBC Coordinating Team				X	X	X	X	X																														
	Res. & Eval Division				X	X	X	X	X																														
	DAIS*				X	X	X	X	X																														
4. Convene Validation Design Group	Res. & Eval. Div					X	X	X	X																														
a. Review Validation Model	CBC Coord. Team					X	X	X	X																														
b. Assess Implementation of Model	DAIS*					X	X	X	X																														
c. Modify Model Where Necessary																																							
5. Review and Update Instruments	Res. & Eval. Division																																						
a. Curriculum Material Review Checklist						X	X																																
b. Teacher Feedback Form	CBC Coordinating Team					X	X																																
c. Teacher Background Form						X	X																																
d. Observation Form	DAIS*					X	X																																
e. Student Participation Form						X	X																																
f. Hierarchy of Learning Dependency Input Form						X	X																																
6. Develop Sampling Matrix	Res. & Eval. Division						X	X	X																														
a. Number of Teachers	CBC Coordinating Team						X	X	X																														
b. Number of Students	DAIS*						X	X	X																														
c. Subject Areas																																							

TABLE II-1 Continued

CBC CURRICULUM VALIDATION STRATEGIES
for
LANGUAGE ARTS/ENGLISH AND SCIENCE
1978-79

MAJOR TASKS	Responsibility of	(MONTH-WEEK) TIME FRAME - 1978-79																																							
		Aug.				Sept.				Oct.				Nov.				Dec.				Jan.				Feb.				Mar.				Apr.				May			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
7. Develop Tasks for Each Responsible Group	Res. & Eval. Division CBC Coordinating Team																																								
a. Superintendent's Office							X	X	X																																
b. Division of Research and Evaluation							X	X	X																																
c. Office of Instruction (Coord. Team, Pupil Appraisal)							X	X	X																																
d. Pilot Schools							X	X	X																																
e. Division of Automated Information Services (DAIS)							X	X	X																																
8. Review Entry Level Testing Procedures	CBC Coord.Team						X	X	X																																
	Res.& Eval.Div						X	X	X																																
	DAIS*						X	X	X																																
9. Prepare Instructions for Principals and Teachers (Pilot Schools)	Res. & Eval. Division DAIS* CBC Coordinating Team																																								
1. Validation procedures									X	X																															
2. Data collection procedures and schedule									X	X																															
10. Schedule Meetings, Conduct Staff Development	Res. & Eval. Division CBC CoordTeam DAIS*																																								
a. For Central Administration							X				X				X				X				X				X				X				X				X		
b. For Regional Assistant Superintendents							X				X				X				X				X				X				X				X				X		
c. For Administrators and Staff of Pilot Schools							X				X				X				X				X				X				X				X				X		
11. Review Curriculum Materials	Curriculum Writers CBC Coordinating Team Validating Teachers Pupil Appraisal																																								
a. Verify that Behavior-Objectives Fit Definitions										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
b. Verify that Instructional Activities Agree With Behavior Objectives										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
c. Verify that Assessment Tasks Agree With Behavior Objectives										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
d. Determine Reading Complexity Level (FOGG Test)										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
e. Determine Reading Emphasis										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
f. Determine Power Levels of Triads (Puissance Index)										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
g. Check Hierarchy										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
h. Check Validity of Assessment Task Items										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
i. Include Performance Criteria in Behavior Objectives and in the Assessment Tasks										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
j. Develop New Assessment Tasks as Needed										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

TABLE II-1 Continued

CBC CURRICULUM VALIDATION STRATEGIES
for
LANGUAGE ARTS/ENGLISH AND SCIENCE
1978-79

MAJOR TASKS	Responsibility of	(MONTH-WEEK) TIME FRAME - 1978-79																																															
		Aug.				Sept.				Oct.				Nov.				Dec.				Jan.				Feb.				Mar.				Apr.				May				June				July			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
12. Implement Sampling Matrix	Res. & Eval. Division CBC Coordinating Team Principals of Pilot Schools																																																
a. Teachers										X																																							
b. Students										X																																							
c. Subject Areas										X																																							
13. Develop Data Processing Procedures and Report Requirements	DAIS*									X	X	X	X	X	X	X	X																																
	Res.&Eval.Div.									X	X	X	X	X	X	X	X																																
14. Determine Reading Comprehension Level (CLOZE)	Teachers - Pilot Schools																																																
a. Construct Test for Reading Comprehension										X	X	X	X	X	X	X	X																																
b. Administer Test (CLOZE)												X	X	X	X	X	X	X	X																												
15. Collect Data	Res. & Eval. Division																																																
a. Maintain Quality Control													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
b. Code and Label Objectives													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
c. Compile Data Objective-by-Objective													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
d. Tabulate Results													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
16. Classroom Observation	Prins. Pilot Schools or Designees													X	X	X	X					X	X	X	X				X	X	X	X				X	X	X	X										
17. Progress Report	Res. & Eval. Division																X																X																
	Supt's Office																	X																X															
18. Provide Feedback to Curriculum Writers	Res. & Eval. Division																									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	DAIS*																									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

TABLE II-1 Continued

CBC CURRICULUM VALIDATION STRATEGIES
for
LANGUAGE ARTS/ENGLISH AND SCIENCE
1978-79

MAJOR TASKS	Respon-sibility of	(MONTH-WEEK) TIME FRAME - 1978-79																																													
		Aug.				Sept.				Oct.				Nov.				Dec.				Jan.				Feb.				Mar.				Apr.				May				June				July			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
19. Analyze Data	Res. & Eval. Division																																																
a. Puissance Index Data																																	X	X	X	X	X												
b. Sampling Data																																	X	X	X	X	X												
c. Reading Complexity Data (FOGG)																																	X	X	X	X	X												
d. Reading Comprehension Data (CLOZE)																																	X	X	X	X	X												
e. Observation Data																																	X	X	X	X	X												
20. Process Data and Preliminary Analysis	DAIS*																																																
a. Keypunch Data																																				X	X												
b. Compile Data Objective-by-Objective																																				X	X	X	X	X	X	X	X						
c. Maintain Quality Control																																				X	X	X	X	X	X	X	X						
d. Compute Statistics																																				X	X	X	X	X	X	X	X						
e. Generate Printouts																																				X	X	X	X	X	X	X	X						
21. Analyze Data	Res. & Eval. Division																																																
a. Teacher Feedback Data																																				X	X	X	X	X	X								
b. Student Performance Data																																				X	X	X	X	X	X								
c. Hypothesis of Learning Dependency Data																																				X	X	X	X	X	X								
d. Hierarchy Data																																				X	X	X	X	X	X								
22. Prepare Validation Report	Res. & Eval. Division																																						X	X	X	X	X	X	X				
23. Disseminate Validation Report	Res. & Eval. Division																																													X	X		
24. Report to Public	Superintendent's Office																																															X	

* Division of Automated Information Services

Two additional purposes originally served by the checklist, to insure that the task difficulty level (power) was appropriate and to insure that the reading difficulty level (complexity) was appropriate, were treated separately and completed by DRE staff.[2]

(1) Puissance Index. The puissance index measures the "power" of the instructional triads which comprise the CBC curricula. Each component was rated as to the difficulty level of the action required for a student to demonstrate competency, i.e. name, state a rule previously learned, solve problems, or make inferences based on prior learning. The instrument is shown in Table A-1, Appendix A.

(2) FOG Test. The FOG test is an adapted procedure to measure the reading complexity level of the assessment tasks. If the student is unable to read the question or instructions that make up the assessment task, then it is difficult to interpret the meaning of an incorrect response. Thus, each assessment task was graded according to its reading complexity. The FOG test is considered to be a more appropriate procedure than the SMOG test used in 1977-1978. The FOG instrument is shown in Table A-2, Appendix A.

b. Teacher Background Form. This form was designed in 1977 and completed by teachers participating in the 1977-1978 validation. The teachers indicated their teaching experience, the extent of their CBC training, and areas in which additional training in CBC was desired.

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[2] The difficulty level and complexity level data were completed and shared with the curriculum writers in January 1979.

Only those teachers new to the validation effort were required to complete the form in 1978-1979. See Table A-3, Appendix A.

c. CBC Curriculum Validation Observation Form. The observation checklist (Table A-4, Appendix A), was used by the principal (or a designee) in each Pilot School for observing the CBC process in each of the participating classrooms. According to the validation design, each classroom was to be observed a minimum of four times between October 30, 1978 and May 15, 1979. The purpose of the instrument was to determine the extent to which the CBC approach was being utilized in each classroom where the CBC materials were being validated. The instructions specified that the instrument was not to be used to evaluate the teacher or the effectiveness of the CBC curriculum content.

d. Teacher Feedback Form. The Teacher Feedback Form (Table A-5, Appendix A), was designed to collect information for assessing several aspects of the CBC curriculum content from the perspective of the classroom teacher responsible for preparing and teaching the CBC instructional triads. Teachers were requested to complete a feedback form for each of the instructional triads they taught during the validation. Included were questions designed to assess time required for materials planning, preparation, and administration; teacher perceptions regarding appropriateness and clarity of the triads; student responses to the CBC curriculum materials; and possible additional or alternative activities which might enhance the effectiveness of the materials.

e. Students' Participation Record. The final data collection instrument developed for CBC curriculum validation was the students' participation record (Table A-6, Appendix A). This form was used for recording participating students' progress on each of the instructional triads to which they were exposed during the class period. One form was completed for each group of students and for each instructional triad, beginning with that triad designated as the appropriate entry level point for each group of students at a given grade level.

2. Data Collection Arrangements. To facilitate analysis of the validation data, in the Spring of 1978 the decision was made to collect data on an ongoing basis rather than at the end of the field test. Consequently, arrangements were made for school personnel responsible for completion of the data collection instruments (teachers in the case of the Teacher Feedback Form and the Students' Participation Record and principals or their designees in the case of the Observation Form) to transmit all instruments as they were completed. The principal or designee in each school was responsible for all data collected in that school. Teachers were to place instruments in a box as they were completed, and the principal (or designee) periodically packaged and sent the instruments to DRE for editing and coding. At the end of the validation period the coded Teacher Feedback Forms and the coded Students' Participation Records were given to the Division of Automated Information Systems (DAIS) for processing.

3. Selection of Sample. The majority of the Pilot Schools selected for validation in 1977-1978 continued in that role for school year 1978-1979. Out of the thirteen elementary schools validating language arts/English and science in 1977-1978 eleven continued through the second year. Two elementary schools were added as replacements for the 1978-1979 validation year. One was a Pilot School which validated reading and mathematics the first year and the second school was new to the validation effort. Eight of the nine original junior high Pilot Schools validated language arts/

English and science for the second year. One junior high, new to the validation effort, was added to complete the sample for 1978-1979. The schools and number of teachers by grade levels who volunteered to validate the language arts/English and science curricula K-9 for school year 1978-1979 are shown in Tables B-1 and B-2, Appendix B.

4. Orientation of Participants. Several orientation sessions were conducted for Pilot School teachers and administrators shortly before the validation was to begin. The purpose of these sessions included:

- An explanation of the validation strategies including changes in tasks and schedules;
- The distribution of the data collection instruments with explanations of changes and revisions;
- The identification of resource persons available for assistance;
- The distribution of the language arts/English and science materials to be validated; and
- An explanation of the new integrated hierarchies.

5. Integrated Hierarchies. The curricula materials validated in 1977-1978 were written and taught by strand and category. That is to say, the teacher introduced the capitalization hierarchy to the class and completed the objectives for that level and then moved on to the objectives in the punctuation hierarchy. The strands and categories have been integrated for 1978-1979. Capitalization objectives were not taught separately, but were integrated with punctuation, sentence structure, literature, grammar usage, etc. This was also the case in the science curriculum. The observing objectives were not taught in isolation, but were integrated with measuring, classifying, etc. The rationale was that the skills in the various categories and strands were inter-related and interdependent and, thus, should be taught in that manner. The integrated hierarchies for language arts/English, levels prekindergarten through nine, are presented in Tables C-1 through C-10, Appendix C. The science

integrated hierarchies, levels one through nine are shown in Tables C-11 through C-17, Appendix C. The total number of objectives for both subject areas is shown in Table C-18 by levels.

6. Teaching Instructions. Instructions for classroom validation during the 1978-1979 school year were disseminated and discussed with each Pilot School teacher. The instructions included procedures for:

- Establishing entry levels;
- Grouping for instruction;
- Teaching the instructional triad; and
- Recording and reporting of data.

Instructions for teachers validating language arts/English and science are shown in Table II-2.

To aid teachers in following the new integrated hierarchies a listing of the objectives in instructional sequence paralleling the hierarchy was included as part of the instruction package given to teachers. The instructional sequence for language arts/English is shown in Tables II-3 through II-12 and the instructional sequence for science is shown in Tables II-13 through II-21. In addition to the instructional sequence for a given level each table also includes:

- The page number on which each objective is found in the curriculum manual -- You will note that the page numbers do not appear in numerical sequence. This is because the objectives are listed in the manual by strands and categories;
- The status of the objective -- An objective with the designation of "New" is one that was not developed nor included for validation during the 1977-1978 school year. The few designated "Same" are those objectives that were part of last

TABLE II-2

VALIDATION OF LANGUAGE ARTS/ENGLISH AND SCIENCE CBC CURRICULUM MATERIALS SCHOOL YEAR 1978-79

Instructions for Teachers in Pilot Schools

The initiative, cooperation, and expertise you provided during the 1977-78 validation effort was most appreciated. You are to be commended for your continued participation in this vital role.

Teaching Instructions

You will be provided with CBC curriculum materials and a preferred instructional sequence of objectives for the subject area you have been designated to validate.

1. Establish entry levels for the students in your class. (Use informal tests, criterion-referenced tests, assessment tasks, teacher judgment, and other appropriate methods). Make a note for future reference of the method(s) used for establishing entry levels.
2. Group your students for instruction according to their instructional needs based on entry level determination.
3. Begin instruction with each group of students at their entry level placement in the hierarchy and proceed according to the preferred instructional sequence identified for validation.
4. Teach instructional activity one, then teach instructional activity two. Utilize the seven components of the instructional activity:
   - Initiating the class
   - Stating the informal behavioral objective
   - Recalling the immediate prerequisites
   - Reviewing the home study assignment
   - Introducing new information
   - Providing practice and feedback
   - Closing.
5. After the students have been instructed using the two instructional activities, administer assessment tasks one, two, and three in order and in the manner suggested.

6. After the group, which started at its entry level, has completed the three assessment tasks (successfully or unsuccessfully), it is ready for the next instructional triad in the sequence.

7. Allow each student who does not master a particular objective (as determined by successful or unsuccessful performance on the three assessment tasks) to continue through the next two consecutive instructional triads. If a student fails to master three consecutive objectives, re-teach the missed objectives to the student using whatever additional instructional materials are necessary, but discontinue recording the student's performance on the Student Participation Form. Teachers must adhere to these procedures for the purpose of validation.

Records and Data Collection

To validate the curriculum materials certain data are necessary. As a result you are asked to complete the following instruments. Give the completed instruments to the principal or the principal's designee.

1. The Teacher Background Form - This form is to be completed once at the beginning of the school year. The data will be analyzed and used to plan continuing staff development training to aid you. Please be explicit and specific.

2. The Student's Participation Record - One form is to be completed for each instructional triad beginning with the entry level triad identified for each group.

    a. List alphabetically (last name, first name, and middle initial) all the students in a particular group (as determined by entry levels) along with their I.D. numbers on the form. The form with names and I.D. numbers may be duplicated for future use if the means are available to you.

    b. Complete a form for each instructional triad after at least 75% of the group has completed the three assessment tasks; however, data may be entered as you progress through the instructional triad.

    c. Fill in all identifying data at the top of the form. This is necessary for data processing. The blank calling for "Grade" means the organizational grade level assigned your class, i.e., 1st, 2nd, 6th, 9th, 4/5 combination, etc. It does not mean the instructional level of the students.

TABLE II-2 Continued

d. CHECK the appropriate "Activity" column for the students who completed the activity for the stated objective.

e. CHECK the appropriate "Assessment Task" column for the students who successfully completed the assessment task for the stated objective.

3. Teacher Feedback Form - One form is to be completed and submitted along with the Student's Participation Form (one form for each instructional triad beginning with the entry level triad identified for each group).

   a. Fill in all identifying data at the top of the form (pages one and three). This is necessary for data processing and should be identical to that on the accompanying Student's Participation Form.

   b. In part "A" check the column that most closely represents the amount of time needed for carrying out the CBC instructions for each I.A. and A.T.

   c. For parts "B" and "C" check the column (0 to 4) which most nearly reflects your opinion about each item listed.

   d. The remaining parts of the instrument are provided to enable you to give input about the instructional triad that will help the curriculum writers in revisions, etc., where necessary.

4. If you have further questions or need additional help contact:

   a. Your building principal.

   b. CBC Coordinating Team - Mary White for Language Arts/English and Mary Harbeck for Science at 576-6347 or 576-6580.

   c. Division of Research and Evaluation - Herman Cobb, Director, Evaluation System at 724-4253.

year's validation and remain unchanged in 1978-1979. Those objectives designated "Revised" are ones that underwent a revision as a result of the 1977-1978 validation;

- The objective code developed for data processing --It was hoped that the curriculum writers would adopt the data processing code and assign all new objectives a similar code. The code adds flexibility in identifying an objective by subject area, level and category and in the storage, control, and retrieval effort. The coding system is explained in Chapter III; and

- The total number of objectives to be validated for each grade level -- The number of objectives is indicated in the "Sequence of Instruction" column.

The total number of language arts/English objectives to be validated in 1978-1979 is 425. This includes 224 objectives for grades PreK/K through six and 201 objectives for grades seven through nine. The total number of science objectives to be validated is 315. This includes 161 objectives for grades one through six and 154 objectives for grades seven through nine.

Sixty-six percent of the language arts/English objectives are new, thirty-three percent are revised, and about one percent are objectives that withstood the first validation without revision. Seventy-nine percent of the science objectives are new, fourteen percent are revised, and about six percent are carry-overs from the initial validation with no change except a possible recategorizing.

It must be noted that the great percentage of new objectives is due to curriculum expansion. In 1977-1978 there were only a few strands developed for each curriculum area. In fact, for elementary science only the Observing strand was developed whereas for 1978-1979 six strands are included.

TABLE II-3
CBC VALIDATION

LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVELS PreK-K

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	LISTENING 1	3	NEW	LAEX030.0LIS
2	SPEAKING 1	64	NEW	LAEX030.0SPK
3	SPEAKING 2	65	NEW	LAEX040.0SPK
4	LITERATURE 1	494	NEW	LAEX030.0LIT
5	LISTENING 2	5	NEW	LAEX040.0LIS
6	SPEAKING 3	67	NEW	LAEX050.0SPK
7	SENTENCE STRUCTURE 1	266	NEW	LAEW030.0SEN
8	SENTENCE STRUCTURE 2	268	Revised	LAEW040.1SEN
9	SENTENCE STRUCTURE 3	270	Revised	LAEW050.1SEN
10	SENTENCE STRUCTURE 4	273	Revised	LAEW060.1SEN

TABLE II-4
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL ONE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	LISTENING 3	7	NEW	LAEX050.0LIS
2	LITERATURE 3	498	NEW	LAEX050.0LIT
3	LITERATURE 4	501	NEW	LAEX060.0LIT
4	GRAMMAR USAGE 1	101	NEW	LAEW030.0GRA
5	GRAMMAR USAGE 2	103	NEW	LAEW040.0GRA
6	GRAMMAR USAGE 3	106	NEW	LAEW050.0GRA
7	GRAMMAR USAGE 4	112	NEW	LAEW060.0GRA
8	GRAMMAR USAGE 5	116	NEW	LAEW070.0GRA
9	GRAMMAR USAGE 6	118	NEW	LAEW080.0GRA
10	SENTENCE STRUCTURE 5	274	NEW	LAEW070.0SEN
11	SENTENCE STRUCTURE 6	277	Revised	LAEW080.1SEN
12	SENTENCE STRUCTURE 7	281	Revised	LAEW090.1SEN
13	LISTENING 4	10	NEW	LAEX060.0LIS
14	SPEAKING 4	69	NEW	LAEX060.0SPK
15	GRAMMAR USAGE 7	120	NEW	LAEW090.0GRA
16	GRAMMAR USAGE 8	123	NEW	LAEW100.0GRA
17	GRAMMAR USAGE 9	126	NEW	LAEW110.0GRA
18	SENTENCE STRUCTURE 8	284	Revised	LAEW100.1SEN
19	CAPITALIZATION 1	361	Revised	LAEW030.1CAP
20	CAPITALIZATION 2	363	Revised	LAEW040.1CAP
21	PUNCTUATION 1	392	Revised	LAEW030.1PUN
22	PUNCTUATION 2	394	Revised	LAEW040.1PUN
23	LISTENING 5	13	NEW	LAEX070.0LIS
24	SPEAKING 5	71	NEW	LAEX070.0SPK
25	LITERATURE 2	5	NEW	LAEX040.0LIT

TABLE II-5
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL TWO

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	LITERATURE 5	504	NEW	LAEX070.0LIT
2	LITERATURE 6	507	NEW	LAEX080.0LIT
3	LISTENING 6	15	NEW	LAEX080.0LIS
4	LISTENING 7	18	NEW	LAEX090.0LIS
5	SPEAKING 6	73	NEW	LAEX080.0SPK
6	SPEAKING 7	75	NEW	LAEX090.0SPK
7	GRAMMAR USAGE 10	129	NEW	LAEW120.0GRA
8	GRAMMAR USAGE 11	133	NEW	LAEW130.0GRA
9	GRAMMAR USAGE 12	135	NEW	LAEW140 0GRA
10	GRAMMAR USAGE 13	140	NEW	LAEW150.0GRA
11	GRAMMAR USAGE 14	143	NEW	LAEW160.0GRA
12	CAPITALIZATION 4	367	Revised	LAEW060.1CAP
13	CAPITALIZATION 5	369	Revised	LAEW070.1CAP
14	GRAMMAR USAGE 15	146	NEW	LAEW170.0GRA
15	GRAMMAR USAGE 16	150	NEW	LAEW180.0GRA
16	SENTENCE STRUCTURE 10	290	NEW	LAEW120.0SEN
17	SENTENCE STRUCTURE 11	293	Revised	LAEW130.1SEN
18	CAPITALIZATION 3	365	Revised	LAEW050.1CAP
19	PUNCTUATION 3	396	Revised	LAEW050.1PUN
20	PUNCTUATION 4	398	Revised	LAEW060.1PUN
21	PUNCTUATION 5	400	Revised	LAEW070.1PUN
22	PUNCTUATION 6	401	Revised	LAEW080.1PUN
23	PUNCTUATION 7	403	Revised	LAEW090.1PUN
24	PUNCTUATION 8	405	Revised	LAEW100.1PUN
25	LITERATURE 7	509	NEW	LAEX090.0LIT
26	PUNCTUATION 10	411	Revised	LAEW120.1PUN
27	PUNCTUATION 9	408	Revised	LAEW110.1PUN
28	SENTENCE STRUCTURE 9	287	Revised	LAEW110.1SEN

TABLE II-6
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL THREE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	LISTENING 8	20	NEW	LAEX100.0LIS
2	SENTENCE STRUCTURE 12	297	NEW	LAEW140.0SEN
3	SPEAKING 8	77	NEW	LAEX100.0SPK
4	SPEAKING 9	79	NEW	LAEX110.0SPK
5	GRAMMAR USAGE 17	154	NEW	LAEW190.0GRA
6	GRAMMAR USAGE 18	157	NEW	LAEW200.0GRA
7	CAPITALIZATION 6	371	Revised	LAEW080.1CAP
8	SPEAKING 10	81	NEW	LAEX120.0SPK
9	GRAMMAR USAGE 19	161	NEW	LAEW210.0GRA
10	GRAMMAR USAGE 20	164	NEW	LAEW220.0GRA
11	GRAMMAR USAGE 21	169	NEW	LAEW230.0GRA
12	LITERATURE 8	513	NEW	LAEX100.0LIT
13	GRAMMAR USAGE 22	173	NEW	LAEW240.0GRA
14	SENTENCE STRUCTURE 13	301	Revised	LAEW150.1SEN
15	GRAMMAR USAGE 23	176	NEW	LAEW250.0GRA
16	GRAMMAR USAGE 24	179	NEW	LAEW260.0GRA
17	SENTENCE STRUCTURE 14	303	NEW	LAEW160.0SEN
18	CREATIVE WRITING 1	462	NEW	LAEW030.0CRE
19	SENTENCE STRUCTURE 15	305	Revised	LAEW170.1SEN
20	CREATIVE WRITING 2	465	NEW	LAEW040.0CRE
21	CREATIVE WRITING 3	467	NEW	LAEW050.0CRE
22	SENTENCE STRUCTURE 16	307	NEW	LAEW180.0SEN
23	SENTENCE STRUCTURE 17	311	Revised	LAEW190.1SEN
24	CAPITALIZATION 7	373	Revised	LAEW090.1CAP
25	PUNCTUATION 11	413	Revised	LAEW130.1PUN
26	PUNCTUATION 12	416	Revised	LAEW140.1PUN
27	SENTENCE STRUCTURE 18	315	NEW	LAEW200.0SEN
28	SENTENCE STRUCTURE 19	318	Revised	LAEW210.1SEN
29	GRAMMAR USAGE 25	181	NEW	LAEW270.0GRA
30	PUNCTUATION 13	418	Revised	LAEW150.1PUN
31	PUNCTUATION 14	420	Revised	LAEW160.1PUN
32	STUDY SKILLS 1	595	NEW	LAEX030.0STU
33	STUDY SKILLS 2	600	NEW	LAEX040.0STU
34	STUDY SKILLS 3	607	NEW	LAEX050.0STU
35	CAPITALIZATION 8	375	NEW	LAEW100.0CAP
36	LITERATURE 9	517	NEW	LAEX110.0LIT
37	LITERATURE 10	519	NEW	LAEX120.0LIT

TABLE II-7
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL FOUR

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	LISTENING 9	22	NEW	LAEX110.0LIS
2	SPEAKING 11	83	NEW	LAEX130.0SPK
3	CREATIVE WRITING 4	469	NEW	LAEW060.0CRE
4	GRAMMAR USAGE 26	184	NEW	LAEW280.0GRA
5	SENTENCE STRUCTURE 20	320	Revised	LAEW220.1SEN
6	CAPITALIZATION 9	377	Revised	LAEW110.1CAP
7	CAPITALIZATION 11	381	Revised	LAEW130.1CAP
8	PUNCTUATION 15	422	Revised	LAEW170.1PUN
9	LITERATURE 11	523	NEW	LAEX130.0LIT
10	SPEAKING 12	85	NEW	LAEX140.0SPK
11	STUDY SKILLS 4	609	NEW	LAEX060.0STU
12	SENTENCE STRUCTURE 22	324	NEW	LAEW240.0SEN
13	SENTENCE STRUCTURE 23	327	NEW	LAEW250.0SEN
14	SENTENCE STRUCTURE 24	329	NEW	LAEW260.0SEN
15	CAPITALIZATION 10	379	NEW	LAEW120.0CAP
16	PUNCTUATION 16	425	Revised	LAEW180.1PUN
17	PUNCTUATION 17	428	SAME	LAEW190.0PUN
18	GRAMMAR USAGE 27	188	NEW	LAEW290.0GRA
19	GRAMMAR USAGE 28	190	NEW	LAEW300.0GRA
20	CREATIVE WRITING 5	472	NEW	LAEW070.0CRE
21	CREATIVE WRITING 6	474	NEW	LAEW080.0CRE
22	LITERATURE 14	530	NEW	LAEX160.0LIT
23	SENTENCE STRUCTURE 21	322	Revised	LAEW230.1SEN
24	STUDY SKILLS 5	614	NEW	LAEX070.0STU
25	GRAMMAR USAGE 29	192	NEW	LAEW310.0GRA
26	GRAMMAR USAGE 30	195	NEW	LAEW320.0GRA
27	PUNCTUATION 18	431	Revised	LAEW200.1PUN
28	PUNCTUATION 19	434	Revised	LAEW210.1PUN
29	MASS MEDIA 1	576	NEW	LAEX030.0MAS
30	LITERATURE 12	525	NEW	LAEX140.0LIT
31	LITERATURE 13	527	NEW	LAEX150.0LIT
32	GRAMMAR USAGE 31	198	NEW	LAEW330.0GRA

TABLE II-8
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL FIVE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	LISTENING 10	25	NEW	LAEX120.0LIS
2	STUDY SKILLS 6	617	NEW	LAEX080.0STU
3	STUDY SKILLS 7	620	NEW	LAEX090.0STU
4	LITERATURE 15	534	NEW	LAEX170.0LIT
5	LITERATURE 16	539	NEW	LAEX180.0LIT
6	SPEAKING 13	88	NEW	LAEX150.0SPK
7	SPEAKING 14	90	NEW	LAEX160.0SPK
8	LISTENING 11	27	NEW	LAEX130.0LIS
9	GRAMMAR USAGE 32	201	NEW	LAEW340.0GRA
10	GRAMMAR USAGE 33	203	NEW	LAEW350.0GRA
11	SENTENCE STRUCTURE 25	332	Revised	LAEW270.1SEN
12	SENTENCE STRUCTURE 26	335	Revised	LAEW280.1SEN
13	SENTENCE STRUCTURE 27	337	Revised	LAEW290.1SEN
14	SENTENCE STRUCTURE 28	340	Revised	LAEW300.1SEN
15	PUNCTUATION 20	437	Revised	LAEW220.1PUN
16	LITERATURE 17	543	NEW	LAEX190.0LIT
17	CREATIVE WRITING 7	477	NEW	LAEW090.0CRE
18	CREATIVE WRITING 8	479	NEW	LAEW100.0CRE
19	GRAMMAR USAGE 34	206	NEW	LAEW360.0GRA
20	GRAMMAR USAGE 35	211	NEW	LAEW370.0GRA
21	CAPITALIZATION 12	383	Revised	LAEW140.1CAP
22	LITERATURE 18	548	NEW	LAEX200.0LIT
23	LITERATURE 19	551	NEW	LAEX210.0LIT
24	CREATIVE WRITING 9	481	NEW	LAEW110.0CRE
25	CREATIVE WRITING 10	484	NEW	LAEW120.0CRE
26	GRAMMAR USAGE 36	212	NEW	LAEW380.0GRA
27	GRAMMAR USAGE 37	217	NEW	LAEW390.0GRA
28	CAPITALIZATION 13	385	Revised	LAEW150.1CAP
29	MASS MEDIA 2	579	NEW	LAEX040.0MAS
30	SENTENCE STRUCTURE 29	342	Revised	LAEW310.1SEN
31	CAPITALIZATION 14	387	Revised	LAEW160.1CAP
32	PUNCTUATION 21	439	Revised	LAEW230.1PUN
33	PUNCTUATION 22	442	Revised	LAEW240.1PUN
34	PUNCTUATION 23	444	Revised	LAEW250.1PUN
35	GRAMMAR USAGE 38	218	NEW	LAEW400.0GRA
36	GRAMMAR USAGE 39	221	NEW	LAEW410.0GRA
37	GRAMMAR USAGE 40	223	NEW	LAEW420.0GRA
38	GRAMMAR USAGE 41	226	NEW	LAEW430.0GRA
39	GRAMMAR USAGE 42	228	NEW	LAEW440.0GRA
40	GRAMMAR USAGE 43	231	NEW	LAEW450.0GRA
41	GRAMMAR USAGE 44	234	NEW	LAEW460.0GRA
42	GRAMMAR USAGE 45	237	NEW	LAEW470.0GRA
43	SENTENCE STRUCTURE 30	345	NEW	LAEW320.0SEN
44	SENTENCE STRUCTURE 31	348	NEW	LAEW330.0SEN
45	MASS MEDIA 3	581	NEW	LAEX050.0MAS
46	MASS MEDIA 4	583	NEW	LAEX060.0MAS

TABLE II-8 (Continued)
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL FIVE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
47	MASS MEDIA 5	586	NEW	LAEX070.0MAS
48	GRAMMAR USAGE 46	240	NEW	LAEW480.0GRA
49	GRAMMAR USAGE 47	243	NEW	LAEW490.0GRA
50	GRAMMAR USAGE 48	246	NEW	LAEW500.0GRA
51	SENTENCE STRUCTURE 32	350	Revised	LAEW340.1SEN

TABLE II-9
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL SIX

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	LISTENING 12	33	NEW	LAEX140.0LIS
2	LISTENING 13	41	NEW	LAEX150.0LIS
3	LISTENING 14	44	NEW	LAEX160.0LIS
4	LISTENING 15	49	NEW	LAEX170.0LIS
5	LISTENING 16	52	NEW	LAEX180.0LIS
6	LITERATURE 20	553	NEW	LAEX220.0LIT
7	LITERATURE 21	557	NEW	LAEX230.0LIT
8	GRAMMAR USAGE 49	249	NEW	LAEW510.0GRA
9	GRAMMAR USAGE 50	252	NEW	LAEW520.0GRA
10	GRAMMAR USAGE 51	255	NEW	LAEW530.0GRA
11	GRAMMAR USAGE 52	258	NEW	LAEW540.0GRA
12	GRAMMAR USAGE 53	260	NEW	LAEW550.0GRA
13	STUDY SKILLS 8	622	NEW	LAEX100.0STU
14	STUDY SKILLS 9	625	NEW	LAEX110.0STU
15	SENTENCE STRUCTURE 33	353	NEW	LAEW350.0SEN
16	LITERATURE 22	560	NEW	LAEX240.0LIT
17	CREATIVE WRITING 11	486	NEW	LAEW130.0CRE
18	CREATIVE WRITING 12	488	NEW	LAEW140.0CRE
19	STUDY SKILLS 10	629	NEW	LAEX120.0STU
20	SPEAKING 15	92	NEW	LAEX170.0SPK
21	SPEAKING 16	94	NEW	LAEX180.0SPK
22	SPEAKING 17	96	NEW	LAEX190.0SPK
23	GRAMMAR USAGE 54	54	NEW	LAEW560.0GRA
24	CAPITALIZATION 15	389	Revised	LAEW170.1CAP
25	PUNCTUATION 24	447	Revised	LAEW260.1PUN
26	PUNCTUATION 25	450	Revised	LAEW270.1PUN
27	PUNCTUATION 26	452	Revised	LAEW280.1PUN
28	PUNCTUATION 27	455	Revised	LAEW290.1PUN
29	STUDY SKILLS 11	633	NEW	LAEX130.0STU
30	MASS MEDIA 6	588	NEW	LAEX080.0MAS
31	PUNCTUATION 28	457	Revised	LAEW300.1PUN
32	SENTENCE STRUCTURE 34	355	NEW	LAEW360.0SEN
33	MASS MEDIA 7	591	NEW	LAEX090.0MAS
34	LITERATURE 23	562	NEW	LAEX250.0LIT
35	PUNCTUATION 29	459	Revised	LAEW310.1PUN
36	LISTENING 17	56	NEW	LAEX190.0LIS
37	LITERATURE 24	565	NEW	LAEX260.0LIT
38	CREATIVE WRITING 13	491	NEW	LAEW150.0CRE
39	LITERATURE 25	571	NEW	LAEX270.0LIT
40	SPEAKING 18	98	NEW	LAEX200.0SPK
41	SENTENCE STRUCTURE 35	358	NEW	LAEW370.0SEN

TABLE II-10
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL SEVEN

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	SPEAKING 1	42	NEW	ENSX030.0SPK
2	SPEAKING 2	45	NEW	ENSX040.0SPK
3	LISTENING 2	7	NEW	ENSX040.0LIS
4	SPEAKING 3	49	NEW	ENSX050.0SPK
5	LISTENING 1	3	NEW	ENSX030.0LIS
6	SPEAKING 4	51	NEW	ENSX060.0SPK
7	LISTENING 3	10	NEW	ENSX050.0LIS
8	PUNCTUATION 1	411	Same	ENSW030.0PUN
9	SPELLING 1	444	Revised	ENSW030.1SPE
10	SPELLING 2	447	Revised	ENSW040.1SPE
11	SPELLING 3	450	Revised	ENSW050.1SPE
12	SPELLING 4	456	Revised	ENSW060.1SPE
13	PUNCTUATION 2	416	Revised	ENSW040.1PUN
14	CAPITALIZATION 1	394	Revised	ENSW030.1CAP
15	CAPITALIZATION 2	399	NEW	ENSW040.0CAP
16	CAPITALIZATION 3	401	Revised	ENSW050.1CAP
17	CAPITALIZATION 4	403	NEW	ENSW060.0CAP
18	CAPITALIZATION 5	405	NEW	ENSW070.0CAP
19	CAPITALIZATION 6	407	Same	ENSW080.0CAP
20	PARTS OF SPEECH 1	78	Revised	ENSW030.1POS
21	VERB USAGE 1	120	NEW	ENSW030.0VER
22	VERB USAGE 2	129	NEW	ENSW040.0VER
23	PARTS OF SPEECH 2	84	Revised	ENSW040.1POS
24	SUBJECT/VERB 1	144	NEW	ENSW030.0SVA
25	SUBJECT/VERB 2	147	NEW	ENSW040.0SVA
26	SUBJECT/VERB 3	151	Revised	ENSW050.1SVA
27	PARTS OF SPEECH 3	87	Revised	ENSW050.1POS
28	PRONOUN USAGE 1	186	Revised	ENSW030.1PRO
29	PRONOUN USAGE 2	190	Revised	ENSW040.1PRO
30	VERB USAGE 3	132	NEW	ENSW050.0VER
31	VERB USAGE 4	135	Revised	ENSW060.1VER
32	SENTENCE STRUCTURE 1	223	Revised	ENSW030.1SEN
33	SENTENCE STRUCTURE 2	226	Revised	ENSW040.1SEN
34	SENTENCE STRUCTURE 3	229	Revised	ENSW050.1SEN
35	SENTENCE STRUCTURE 4	232	NEW	ENSW060.0SEN
36	SENTENCE STRUCTURE 5	235	NEW	ENSW070.0SEN
37	SENTENCE STRUCTURE 6	238	Revised	ENSW080.1SEN
38	SENTENCE STRUCTURE 7	241	Revised	ENSW090.1SEN
39	SENTENCE STRUCTURE 8	244	Revised	ENSW100.1SEN
40	PARTS OF SPEECH 4	82	Revised	ENSW060.1POS
41	PRONOUN USAGE 3	194	Revised	ENSW050.1PRO
42	PRONOUN USAGE 4	200	Revised	ENSW060.1PRO
43	PARTS OF SPEECH 5	90	Revised	ENSW070.1POS
44	VERB USAGE 5	142	NEW	ENSW070.0VER
45	PARAGRAPH 1	283	Revised	ENSW030.1PAR
46	PARAGRAPH 2	286	Revised	ENSW040.1PAR
47	PARAGRAPH 3	289	Revised	ENSW050.1PAR

TABLE II-10 (Continued)
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL SEVEN

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
48	PARAGRAPH 4	294	Revised	ENSW060.1PAR
49	PARAGRAPH 5	298	Revised	ENSW070.1PAR
50	PARAGRAPH 6	301	Revised	ENSW080.1PAR
51	PARAGRAPH 7	305	Revised	ENSW090.1PAR
52	POETRY 1	566	NEW	ENSL030.0POE
53	POETRY 2	573	NEW	ENSL040.0POE
54	POETRY 3	580	NEW	ENSL050.0POE
55	POETRY 4	584	NEW	ENSL060.0POE
56	POETRY 5	592	NEW	ENSL070.0POE
57	POETRY 6	598	NEW	ENSL080.0POE
58	POETRY 7	601	NEW	ENSL090.0POE
59	NONFICTION 1	610	NEW	ENSL030.0NON
60	NONFICTION 2	614	NEW	ENSL040.0NON
61	CREATIVE WRITING 1	489	NEW	ENSW030.0CRE
62	CREATIVE WRITING 2	493	NEW	ENSW040.0CRE
63	CREATIVE WRITING 3	496	NEW	ENSW050.0CRE
64	CREATIVE WRITING 4	499	NEW	ENSW060.0CRE
65	CREATIVE WRITING 5	502	NEW	ENSW070.0CRE
66	CREATIVE WRITING 6	506	NEW	ENSW080.0CRE

TABLE II-11
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL EIGHT

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	LISTENING 4	13	NEW	ENSX060.0LIS
2	SPEAKING 5	54	NEW	ENSX070.0SPK
3	SPEAKING 6	58	NEW	ENSX080.0SPK
4	LISTENING 5	17	NEW	ENSX070.0LIS
5	LISTENING 6	24	NEW	ENSX080.0LIS
6	LISTENING 7	31	NEW	ENSX090.0LIS
7	LISTENING 8	34	NEW	ENSX100.0LIS
8	LISTENING 9	37	NEW	ENSX110.0LIS
9	SPEAKING 7	61	NEW	ENSX090.0SPK
10	SPEAKING 8	66	NEW	ENSX100.0SPK
11	SPEAKING 9	69	NEW	ENSX110.0SPK
12	SPEAKING 10	71	NEW	ENSX120.0SPK
13	PUNCTUATION 3	418	Revised	ENSW050.1PUN
14	PUNCTUATION 4	422	Revised	ENSW060.1PUN
15	PUNCTUATION 5	428	Revised	ENSW070.1PUN
16	PUNCTUATION 6	431	Revised	ENSW080.1PUN
17	SPELLING 5	460	Revised	ENSW070.1SPE
18	SPELLING 6	464	Revised	ENSW080.1SPE
19	SPELLING 7	467	Revised	ENSW090.1SPE
20	SPELLING 8	472	Revised	ENSW100.1SPE
21	PUNCTUATION 7	436	Revised	ENSW090.1PUN
22	PARTS OF SPEECH 6	93	Revised	ENSW080.1POS
23	PARTS OF SPEECH 7	97	Revised	ENSW090.1POS
24	PARTS OF SPEECH 8	101	Revised	ENSW100.1POS
25	PARTS OF SPEECH 9	106	Revised	ENSW110.1POS
26	PARTS OF SPEECH 10	109	Revised	ENSW120.1POS
27	PARTS OF SPEECH 11	113	Revised	ENSW130.1POS
28	PARTS OF SPEECH 12	115	Revised	ENSW140.1POS
29	SUBJECT/VERB 4	156	Revised	ENSW060.1SVA
30	SUBJECT/VERB 5	159	Revised	ENSW070.1SVA
31	SUBJECT/VERB 6	162	Revised	ENSW080.1SVA
32	SUBJECT/VERB 7	165	Revised	ENSW090.1SVA
33	SENTENCE STRUCTURE 9	246	Revised	ENSW110.1SEN
34	SENTENCE STRUCTURE 10	249	Revised	ENSW120.1SEN
35	SENTENCE STRUCTURE 11	252	Revised	ENSW130.1SEN
36	SENTENCE STRUCTURE 12	255	Revised	ENSW140.1SEN
37	SENTENCE STRUCTURE 13	258	Revised	ENSW150.1SEN
38	SENTENCE STRUCTURE 14	262	Revised	ENSW160.1SEN
39	SENTENCE STRUCTURE 15	266	NEW	ENSW170.0SEN
40	SENTENCE STRUCTURE 16	269	Revised	ENSW180.1SEN
41	SENTENCE STRUCTURE 17	272	Revised	ENSW190.1SEN
42	SUBJECT/VERB 8	167	Revised	ENSW100.1SVA
43	SUBJECT/VERB 9	170	Revised	ENSW110.1SVA
44	PRONOUN USAGE 5	205	Revised	ENSW070.1PRO
45	PRONOUN USAGE 6	210	Revised	ENSW080.1PRO
46	PRONOUN USAGE 7	213	Revised	ENSW090.1PRO

TABLE II-11 (Continued)
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL EIGHT

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
47	PRONOUN USAGE 8	220	Revised	ENSW100.1PRO
48	PARAGRAPH 8	309	Revised	ENSW100.1PAR
49	PARAGRAPH 9	313	Revised	ENSW110.1PAR
50	PARAGRAPH 10	316	Revised	ENSW120.1PAR
51	PARAGRAPH 11	320	Revised	ENSW130.1PAR
52	PARAGRAPH 12	324	Revised	ENSW140.1PAR
53	PARAGRAPH 13	331	Revised	ENSW150.1PAR
54	THEMES AND COMPOSITION 1	333	NEW	ENSW030.0COM
55	THEMES AND COMPOSITION 2	343	NEW	ENSW040.0COM
56	THEMES AND COMPOSITION 3	348	Revised	ENSW050.1COM
57	THEMES AND COMPOSITION 4	353	Revised	ENSW060.1COM
58	THEMES AND COMPOSITION 5	361	NEW	ENSW070.0COM
59	THEMES AND COMPOSITION 6	365	NEW	ENSW080.0COM
60	NONFICTION 3	619	NEW	ENSL050.0NON
61	NONFICTION 4	625	NEW	ENSL060.0NON
62	THEMES AND COMPOSITION 7	368	NEW	ENSW090.0COM
63	THEMES AND COMPOSITION 8	372	NEW	ENSW100.0COM
64	THEMES AND COMPOSITION 9	375	NEW	ENSW110.0COM
65	MYTHS·LEGENDS 1	769	NEW	ENSL030.0MYT
66	MYTHS·LEGENDS 2	775	NEW	ENSL040.0MYT
67	MYTHS·LEGENDS 3	778	NEW	ENSL050.0MYT
68	MYTHS·LEGENDS 4	784	NEW	ENSL060.0MYT
69	MYTHS·LEGENDS 5	786	NEW	ENSL070.0MYT
70	MYTHS·LEGENDS 6	793	NEW	ENSL080.0MYT
71	SHORT STORY 1	650	NEW	ENSL030.0SHO
72	SHORT STORY 2	656	NEW	ENSL040.0SHO
73	SHORT STORY 3	663	NEW	ENSL050.0SHO
74	SHORT STORY 4	667	NEW	ENSL060.0SHO
75	SHORT STORY 5	671	NEW	ENSL070.0SHO
76	SHORT STORY 6	673	NEW	ENSL080.0SHO
77	SHORT STORY 7	675	NEW	ENSL090.0SHO
78	SHORT STORY 8	679	NEW	ENSL100.0SHO
79	SHORT STORY 9	682	NEW	ENSL110.0SHO
80	SHORT STORY 10	686	NEW	ENSL120.0SHO
81	SHORT STORY 11	689	NEW	ENSL130.0SHO
82	CREATIVE WRITING 7	509	NEW	ENSW090.0CRE
83	CREATIVE WRITING 8	512	NEW	ENSW100.0CRE
84	CREATIVE WRITING 9	519	NEW	ENSW110.0CRE
85	CREATIVE WRITING 10	525	NEW	ENSW120.0CRE

TABLE II-12
CBC VALIDATION
LANGUAGE ARTS CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL NINE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	SPELLING 9	476	Revised	ENSW110.1SPE
2	SPELLING 10	481	Revised	ENSW120.1SPE
3	SPELLING 11	485	NEW	ENSW130.0SPE
4	SUBJECT/VERB 10	174	Revised	ENSW120.1SVA
5	SUBJECT/VERB 11	178	Revised	ENSW130.1SVA
6	SUBJECT/VERB 12	183	Revised	ENSW140.1SVA
7	PUNCTUATION 8	440	Revised	ENSW100.1PUN
8	SENTENCE STRUCTURE 18	275	Revised	ENSW200.1SEN
9	SENTENCE STRUCTURE 19	279	Revised	ENSW210.1SEN
10	NONFICTION 5	629	NEW	ENSL070.0NON
11	NONFICTION 6	635	NEW	ENSL080.0NON
12	NONFICTION 7	640	NEW	ENSL090.0NON
13	NONFICTION 8	646	NEW	ENSL100.0NON
14	THEMES AND COMPOSITION 10	377	NEW	ENSW120.0COM
15	THEMES AND COMPOSITION 11	385	NEW	ENSW130.0COM
16	THEMES AND COMPOSITION 12	389	NEW	ENSW140.0COM
17	MYTHS-LEGENDS 7	796	NEW	ENSL090.0MYT
18	MYTHS-LEGENDS 8	799	NEW	ENSL100.0MYT
19	MYTHS-LEGENDS 9	803	NEW	ENSL110.0MYT
20	NOVEL 1	723	NEW	ENSL030.0NOV
21	NOVEL 2	734	NEW	ENSL040.0NOV
22	NOVEL 3	737	NEW	ENSL050.0NOV
23	NOVEL 4	741	NEW	ENSL060.0NOV
24	NOVEL 5	744	NEW	ENSL070.0NOV
25	NOVEL 6	746	NEW	ENSL080.0NOV
26	NOVEL 7	752	NEW	ENSL090.0NOV
27	NOVEL 8	756	NEW	ENSL100.0NOV
28	NOVEL 9	758	NEW	ENSL110.0NOV
29	NOVEL 10	762	NEW	ENSL120.0NOV
30	DRAMA 1	692	NEW	ENSL030.0DRA
31	DRAMA 2	697	NEW	ENSL040.0DRA
32	DRAMA 3	701	NEW	ENSL050.0DRA
33	DRAMA 4	706	NEW	ENSL060.0DRA
34	DRAMA 5	710	NEW	ENSL070.0DRA
35	DRAMA 6	712	NEW	ENSL080.0DRA
36	DRAMA 7	714	NEW	ENSL090.0DRA
37	DRAMA 8	718	NEW	ENSL100.0DRA
38	DRAMA 9	719	NEW	ENSL110.0DRA
39	CREATIVE WRITING 11	528	NEW	ENSW130.0CRE
40	CREATIVE WRITING 12	533	NEW	ENSW140.0CRE
41	CREATIVE WRITING 13	535	NEW	ENSW150.0CRE
42	CREATIVE WRITING 14	537	NEW	ENSW160.0CRE
43	CREATIVE WRITING 15	541	NEW	ENSW170.0CRE
44	CREATIVE WRITING 16	543	NEW	ENSW180.0CRE
45	CREATIVE WRITING 17	546	NEW	ENSW190.0CRE
46	CREATIVE WRITING 18	548	NEW	ENSW200.0CRE
47	CREATIVE WRITING 19	550	NEW	ENSW210.0CRE
48	CREATIVE WRITING 20	553	NEW	ENSW220.0CRE
49	CREATIVE WRITING 21	557	NEW	ENSW230.0CRE
50	CREATIVE WRITING 22	562	NEW	ENSW240.0CRE

TABLE II-13
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL ONE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	OBSERVING 1	7	Revised	SCEX030.1OBS
2	OBSERVING 2	12	Revised	SCEX040.1OBS
3	OBSERVING 3	17	Revised	SCEX050.1OBS
4	OBSERVING 4	21	Revised	SCEX060.1OBS
5	OBSERVING 5	25	Revised	SCEX070.1OBS
6	OBSERVING 6	28	Revised	SCEX080.1OBS
7	OBSERVING 7	32	SAME	SCEX090.0OBS
8	CLASSIFYING 1	306	NEW	SCEX030.0CLA
9	CLASSIFYING 2	310	NEW	SCEX040.0CLA
10	MEASURING 1	137	NEW	SCEX030.0MEA
11	MEASURING 2	140	NEW	SCEX040.0MEA
12	MEASURING 3	143	NEW	SCEX050.0MEA
13	OBSERVING 15	63	SAME	SCEX170.0OBS
14	OBSERVING 16	65	SAME	SCEX180.0OBS
15	OBSERVING 17	67	SAME	SCEX190.0OBS
16	OBSERVING 18	70	Revised	SCEX200.1OBS
17	OBSERVING 19	74	SAME	SCEX210.0OBS
18	MEASURING 4	147	NEW	SCEX060.0MEA
19	OBSERVING 8	37	SAME	SCEX100.0OBS
20	OBSERVING 9	40	Revised	SCEX110.1OBS
21	OBSERVING 10	44	Revised	SCEX120.1OBS
22	OBSERVING 11	48	SAME	SCEX130.0OBS
23	OBSERVING 12	52	SAME	SCEX140.0OBS
24	OBSERVING 13	55	Revised	SCEX150.1OBS
25	OBSERVING 14	59	Revised	SCEX160.1OBS
26	CLASSIFYING 3	314	NEW	SCEX050.0CLA

TABLE II-14
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL TWO

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	S/T RELATIONSHIPS 1	216	NEW	SCEX030.0UST
2	S/T RELATIONSHIPS 2	219	NEW	SCEX040.0UST
3	S/T RELATIONSHIPS 3	222	NEW	SCEX050.0UST
4	S/T RELATIONSHIPS 4	230	NEW	SCEX060.0UST
5	S/T RELATIONSHIPS 5	233	NEW	SCEX070.0UST
6	MEASURING 5	153	NEW	SCEX070.0MEA
7	MEASURING 6	158	NEW	SCEX080.0MEA
8	MEASURING 7	174	NEW	SCEX090 0MEA
9	MEASURING 8	174	NEW	SCEX100.0MEA
10	OBSERVING 20	77	Revised	SCEX220.1OBS
11	OBSERVING 21	81	SAME	SCEX230.0OBS
12	CLASSIFYING 4	317	NEW	SCEX060.0CLA
13	OBSERVING 22	87	NEW	SCEX240.0OBS
14	OBSERVING 23	91	SAME	SCEX250.0OBS
15	OBSERVING 24	95	SAME	SCEX260.0OBS
16	OBSERVING 25	98	Revised	SCEX270.1OBS
17	OBSERVING 26	101	SAME	SCEX280.0OBS
18	CLASSIFYING 5	326	NEW	SCEX070.0CLA
19	OBSERVING 27	104	Revised	SCEX290.1OBS
20	OBSERVING 28	108	SAME	SCEX300.0OBS
21	OBSERVING 29	112	Revised	SCEX310.1OBS
22	OBSERVING 30	116	SAME	SCEX320.0OBS

TABLE II-15
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL THREE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	S/T RELATIONSHIPS 6	236	NEW	SCEX080.0UST
2	S/T RELATIONSHIPS 7	240	NEW	SCEX090.0UST
3	INFERRING/PREDICTING 5	272	NEW	SCEX070.0INP
4	MEASURING 11	188	NEW	SCEX130.0MEA
5	MEASURING 12	198	NEW	SCEX140.0MEA
6	OBSERVING 31	120	Revised	SCEX330.1OBS
7	MEASURING 10	183	NEW	SCEX120.0MEA
8	MEASURING 9	180	NEW	SCEX110.0MEA
9	MEASURING 13	204	NEW	SCEX150.0MEA
10	MEASURING 14	209	NEW	SCEX160.0MEA
11	S/T RELATIONSHIPS 8	243	NEW	SCEX100.0UST
12	S/T RELATIONSHIPS 9	248	NEW	SCEX110.0UST
13	OBSERVING 32	124	SAME	SCEX340.0OBS
14	OBSERVING 33	128	Revised	SCEX350.1OBS
15	OBSERVING 34	131	Revised	SCEX360.1OBS
16	INFERRING/PREDICTING 1	254	NEW	SCEX030.0INP
17	INFERRING/PREDICTING 2	258	NEW	SCEX040.0INP
18	INFERRING/PREDICTING 3	263	NEW	SCEX050.0INP
19	INFERRING/PREDICTING 4	269	NEW	SCEX060.0INP
20	CLASSIFYING 6	330	NEW	SCEX080.0CLA
21	OBSERVING 35	343	Revised	SCEX370.1OBS
22	CLASSIFYING 7	335	NEW	SCEX090.0CLA
23	COMMUNICATING 2	286	NEW	SCEX040.0COM
24	COMMUNICATING 1	279	NEW	SCEX030.0COM

TABLE II-16
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL FOUR

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	COMMUNICATING 5	299	NEW	SCEX070.0COM
2	COMMUNICATING 6	669	NEW	SCEX080.0COM
3	CLASSIFYING 8	756	NEW	SCEX100.0CLA
4	OBSERVING 37	348	Revised	SCEX390.1OBS
5	OBSERVING 38	352	Revised	SCEX400.1OBS
6	INFERRING/PREDICTING 9	611	NEW	SCEX110.0INP
7	CLASSIFYING 9	762	NEW	SCEX110.0CLA
8	CLASSIFYING 10	766	NEW	SCEX120.0CLA
9	COMMUNICATING 4	294	NEW	SCEX060.0COM
10	CLASSIFYING 11	773	NEW	SCEX130.0CLA
11	CLASSIFYING 12	779	NEW	SCEX140.0CLA
12	MEASURING 15	388	NEW	SCEX170.0MEA
13	MEASURING 16	392	NEW	SCEX180.0MEA
14	MEASURING 17	397	NEW	SCEX190.0MEA
15	MEASURING 18	406	NEW	SCEX200.0MEA
16	MEASURING 19	411	NEW	SCEX210.0MEA
17	MEASURING 20	417	NEW	SCEX220.0MEA
18	S/T RELATIONSHIPS 10	542	NEW	SCEX120.0UST
19	S/T RELATIONSHIPS 11	546	NEW	SCEX130.0UST
20	S/T RELATIONSHIPS 12	550	NEW	SCEX140.0UST
21	S/T RELATIONSHIPS 13	554	NEW	SCEX150.0UST
22	S/T RELATIONSHIPS 14	560	NEW	SCEX160.0UST
23	OBSERVING 36	345	Revised	SCEX380.1OBS
24	INFERRING/PREDICTING 8	607	NEW	SCEX100.0INP
25	INFERRING/PREDICTING 6	597	NEW	SCEX080.0INP
26	COMMUNICATING 3	290	NEW	SCEX050.0COM
27	INFERRING/PREDICTING 7	603	NEW	SCEX090.0INP
28	INFERRING/PREDICTING 10	615	NEW	SCEX120.0INP
29	INFERRING/PREDICTING 11	621	NEW	SCEX130.0INP
30	OBSERVING 39	355	Revised	SCEX410.1OBS
31	OBSERVING 40	360	Revised	SCEX420.1OBS

TABLE II-17
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL FIVE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	OBSERVING 43	372	Revised	SCEX450.1OBS
2	INFERRING/PREDICTING 12	624	NEW	SCEX140.0INP
3	INFERRING/PREDICTING 13	628	NEW	SCEX150.0INP
4	INFERRING/PREDICTING 14	631	NEW	SCEX160.0INP
5	INFERRING/PREDICTING 16	637	NEW	SCEX180.0INP
6	COMMUNICATING 9	685	NEW	SCEX110.0COM
7	S/T RELATIONSHIPS 15	565	NEW	SCEX170.0UST
8	S/T RELATIONSHIPS 16	567	NEW	SCEX180.0UST
9	S/T RELATIONSHIPS 17	570	NEW	SCEX190.0UST
10	S/T RELATIONSHIPS 18	574	NEW	SCEX200.0UST
11	S/T RELATIONSHIPS 19	578	NEW	SCEX210.0UST
12	S/T RELATIONSHIPS 20	582	NEW	SCEX220.0UST
13	S/T RELATIONSHIPS 21	585	NEW	SCEX230.0UST
14	S/T RELATIONSHIPS 22	589	NEW	SCEX240.0UST
15	INFERRING/PREDICTING 15	634	NEW	SCEX170.0INP
16	COMMUNICATING 7	675	NEW	SCEX090.0COM
17	COMMUNICATING 8	679	NEW	SCEX100.0COM
18	OBSERVING 41	363	Revised	SCEX430.1OBS
19	OBSERVING 42	368	Revised	SCEX440.1OBS
20	MEASURING 25	458	NEW	SCEX270.0MEA
21	INFERRING/PREDICTING 17	641	NEW	SCEX190.0INP
22	MEASURING 21	430	NEW	SCEX230.0MEA
23	MEASURING 23	446	NEW	SCEX250.0MEA
24	MEASURING 22	438	NEW	SCEX240.0MEA
25	MEASURING 24	452	NEW	SCEX260.0MEA
26	MEASURING 26	477	NEW	SCEX280.0MEA
27	CLASSIFYING 13	785	NEW	SCEX150.0CLA
28	CLASSIFYING 14	796	NEW	SCEX160.0CLA

TABLE II-18
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL SIX

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	COMMUNICATING 11	700	NEW	SCEX130.0COM
2	COMMUNICATING 12	706	NEW	SCEX140.0COM
3	COMMUNICATING 16	729	NEW	SCEX180.0COM
4	COMMUNICATING 14	717	NEW	SCEX160.0COM
5	COMMUNICATING 13	711	NEW	SCEX150.0COM
6	COMMUNICATING 15	724	NEW	SCEX170.0COM
7	COMMUNICATING 18	738	NEW	SCEX200.0COM
8	COMMUNICATING 20	750	NEW	SCEX220.0COM
9	CLASSIFYING 15	805	NEW	SCEX170.0CLA
10	COMMUNICATING 17	734	NEW	SCEX190.0COM
11	INFERRING/PREDICTING 21	658	NEW	SCEX230.0INP
12	INFERRING/PREDICTING 22	663	NEW	SCEX240.0INP
13	MEASURING 27	485	NEW	SCEX290.0MEA
14	MEASURING 29	499	NEW	SCEX310.0MEA
15	COMMUNICATING 10	692	NEW	SCEX120.0COM
16	INFERRING/PREDICTING 20	654	NEW	SCEX220.0INP
17	INFERRING/PREDICTING 18	646	NEW	SCEX200.0INP
18	OBSERVING 44	375	SAME	SCEX460.0OBS
19	OBSERVING 45	378	Revised	SCEX470.1OBS
20	OBSERVING 46	383	SAME	SCEX480.0OBS
21	INFERRING/PREDICTING 19	650	NEW	SCEX210.0INP
22	MEASURING 31	511	NEW	SCEX330.0MEA
23	S/T RELATIONSHIPS 23	592	NEW	SCEX250.0UST
24	CLASSIFYING 16	809	NEW	SCEX180.0CLA
25	CLASSIFYING 17	818	NEW	SCEX190.0CLA
26	MEASURING 28	493	NEW	SCEX300.0MEA
27	MEASURING 30	506	NEW	SCEX320.0MEA
28	MEASURING 32	520	NEW	SCEX340.0MEA
29	MEASURING 33	527	NEW	SCEX350.0MEA
30	COMMUNICATING 19	745	NEW	SCEX210.0COM

TABLE II-19
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL SEVEN

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	COMMUNICATING 1	9	Revised	SCSX030.1COM
2	COMMUNICATING 2	11	Revised	SCSX040.1COM
3	COMMUNICATING 3	15	Revised	SCSX050.1COM
4	FORMULATING HYPOTHESIS 1	17	Revised	SCSX030.1FHY
5	IDENTIFYING VARIABLES 1	19	SAME	SCSX030.0IDV
6	IDENTIFYING VARIABLES 2	22	Revised	SCSX040.1IDV
7	IDENTIFYING VARIABLES 3	25	NEW	SCSX050.0IDV
8	COMMUNICATING 4	27	Revised	SCSX060.1COM
9	COMMUNICATING 5	28	SAME	SCSX070.0COM
10	INTERPRETING DATA 1	30	Revised	SCSX030.1ITD
11	CLASSIFYING 1	33	Revised	SCSX030.1CLA
12	MEASURING 1	36	Revised	SCSX030.1MEA
13	COMMUNICATING 6	38	Revised	SCSX080.1COM
14	MEASURING 2	40	Revised	SCSX040.1MEA
15	MEASURING 3	42	Revised	SCSX050.1MEA
16	INTERPRETING DATA 2	45	Revised	SCSX040.1ITD
17	INTERPRETING DATA 3	47	Revised	SCSX050.1ITD
18	CLASSIFYING 2	49	Revised	SCSX040.1CLA
19	CLASSIFYING 3	52	NEW	SCSX050.0CLA
20	CLASSIFYING 4	54	Revised	SCSX060.1CLA
21	CLASSIFYING 5	57	NEW	SCSX070.0CLA
22	INTERPRETING DATA 4	59	SAME	SCSX060.0ITD
23	COMMUNICATING 7	61	SAME	SCSX090.0COM
24	COMMUNICATING 8	63	NEW	SCSX100.0COM
25	MEASURING 4	66	NEW	SCSX060.0MEA
26	CLASSIFYING 6	69	NEW	SCSX080.0CLA
27	COMMUNICATING 9	72	NEW	SCSX110.0COM
28	COMMUNICATING 10	74	NEW	SCSX120.0COM
29	COMMUNICATING 11	76	NEW	SCSX130.0COM
30	INTERPRETING DATA 6	78	NEW	SCSX080.0ITD
31	IDENTIFYING VARIABLES 4	81	NEW	SCSX060.0IDV
32	INTERPRETING DATA 5	83	NEW	SCSX070.0ITD
33	INTERPRETING DATA 7	85	NEW	SCSX090.0ITD
34	INTERPRETING DATA 8	87	NEW	SCSX100.0ITD
35	CLASSIFYING 7	89	NEW	SCSX090.0CLA
36	IDENTIFYING VARIABLES 5	92	NEW	SCSX070.0IDV
37	COMMUNICATING 12	95	NEW	SCSX140.0COM
38	CLASSIFYING 8	97	NEW	SCSX100.0CLA
39	INTERPRETING DATA 9	100	NEW	SCSX110.0ITD
40	COMMUNICATING 13	10	NEW	SCSX150.0COM
41	CLASSIFYING 9	106	NEW	SCSX110.0CLA
42	INTERPRETING DATA 10	109	NEW	SCSX120.0ITD
43	COMMUNICATING 14	111	NEW	SCSX160.0COM
44	COMMUNICATING 15	113	NEW	SCSX170.0COM
45	CLASSIFYING 10	115	NEW	SCSX120.0CLA

TABLE II-19 (Continued)
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL SEVEN

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
46	CLASSIFYING 11	117	NEW	SCSX130.0CLA
47	CLASSIFYING 12	120	NEW	SCSX140.0CLA
48	CLASSIFYING 13	123	NEW	SCSX150.0CLA
49	COMMUNICATING 16	125	NEW	SCSX180.0COM
50	COMMUNICATING 17	129	NEW	SCSX190.0COM
51	COMMUNICATING 18	130	NEW	SCSX200.0COM
52	COMMUNICATING 19	131	NEW	SCSX210.0COM
53	COMMUNICATING 20	132	NEW	SCSX220.0COM
54	CLASSIFYING 14	134	NEW	SCSX160.0CLA
55	COMMUNICATING 21	136	NEW	SCSX230.0COM
56	COMMUNICATING 22	138	NEW	SCSX240.0COM
57	COMMUNICATING 23	141	NEW	SCSX250.0COM
58	CLASSIFYING 15	142	NEW	SCSX170.0CLA
59	COMMUNICATING 27	145	NEW	SCSX290.0COM
60	COMMUNICATING 24	147	NEW	SCSX260.0COM
61	COMMUNICATING 25	149	NEW	SCSX270.0COM
62	COMMUNICATING 26	151	NEW	SCSX280.0COM
63	COMMUNICATING 28	153	NEW	SCSX300.0COM
64	COMMUNICATING 29	155	NEW	SCSX310.0COM
65	CLASSIFYING 16	157	NEW	SCSX180.0CLA

TABLE II-20
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL EIGHT

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	COMMUNICATING 30	160	NEW	SCSX320.0COM
2	COMMUNICATING 31	163	NEW	SCSX330.0COM
3	MEASURING 7	166	NEW	SCSX090.0MEA
4	MEASURING 5	169	NEW	SCSX070.0MEA
5	MEASURING 6	174	NEW	SCSX080.0MEA
6	MEASURING 8	177	NEW	SCSX100.0MEA
7	IDENTIFYING VARIABLES 6	181	NEW	SCSX080.0IDV
8	INTERPRETING DATA 11	183	NEW	SCSX130.0ITD
9	INTERPRETING DATA 12	185	NEW	SCSX140.0ITD
10	COMMUNICATING 32	187	NEW	SCSX340.0COM
11	COMMUNICATING 33	189	NEW	SCSX350.0COM
12	COMMUNICATING 34	191	NEW	SCSX360.0COM
13	COMMUNICATING 35	194	NEW	SCSX370.0COM
14	IDENTIFYING VARIABLES 7	196	NEW	SCSX090.0IDV
15	COMMUNICATING 36	198	NEW	SCSX380.0COM
16	CLASSIFYING 17	200	NEW	SCSX190.0CLA
17	MEASURING 10	202	NEW	SCSX120.0MEA
18	COMMUNICATING 37	205	NEW	SCSX390.0COM
19	CLASSIFYING 18	207	NEW	SCSX200.0CLA
20	MEASURING 9	209	NEW	SCSX110.0MEA
21	COMMUNICATING 38	212	NEW	SCSX400.0COM
22	CLASSIFYING 19	214	NEW	SCSX210.0CLA
23	COMMUNICATING 39	216	NEW	SCSX410.0COM
24	CLASSIFYING 20	218	NEW	SCSX220.0CLA
25	COMMUNICATING 40	220	NEW	SCSX420.0COM
26	CLASSIFYING 21	222	NEW	SCSX230.0CLA
27	MEASURING 11	224	NEW	SCSX130.0MEA
28	COMMUNICATING 41	227	NEW	SCSX430.0COM
29	CLASSIFYING 22	229	NEW	SCSX240.0CLA
30	COMMUNICATING 42	231	NEW	SCSX440.0COM
31	MEASURING 12	234	NEW	SCSX140.0MEA
32	COMMUNICATING 43	237	NEW	SCSX450.0COM
33	INTERPRETING DATA 13	239	NEW	SCSX150.0ITD
34	INTERPRETING DATA 14	241	NEW	SCSX160.0ITD
35	COMMUNICATING 44	243	NEW	SCSX460.0COM
36	COMMUNICATING 46	245	NEW	SCSX480.0COM
37	COMMUNICATING 45	247	NEW	SCSX470.0COM
38	COMMUNICATING 47	249	NEW	SCSX490.0COM
39	COMMUNICATING 48	251	NEW	SCSX500.0COM
40	COMMUNICATING 49	253	NEW	SCSX510.0COM
41	COMMUNICATING 50	255	NEW	SCSX520.0COM
42	FORMULATING HYPOTHESIS 2	257	NEW	SCSX040.0FHY
43	IDENTIFYING VARIABLES 9	260	NEW	SCSX110.0IDV
44	IDENTIFYING VARIABLES 8	262	NEW	SCSX100.0IDV
45	MEASURING 13	264	NEW	SCSX150.0MEA
46	COMMUNICATING 51	266	NEW	SCSX530.0COM
47	FORMULATING HYPOTHESIS 3	268	NEW	SCSX050.0FHY
48	FORMULATING HYPOTHESIS 4	270	NEW	SCSX060.0FHY

TABLE II-21
CBC VALIDATION
SCIENCE CURRICULUM
INSTRUCTIONAL SEQUENCE
LEVEL NINE

SEQUENCE OF INSTRUCTION	OBJECTIVE NAME AND NUMBER	PAGE NUMBER	STATUS 1978-1979	DATA PROCESSING CODE
1	FORMULATING HYPOTHESIS 5	272	NEW	SCSX070.0FHY
2	EXPERIMENT 1	274	NEW	SCSX030.0EXP
3	COMMUNICATING 52	277	NEW	SCSX540.0COM
4	COMMUNICATING 53	279	NEW	SCSX550.0COM
5	COMMUNICATING 54	281	NEW	SCSX560.0COM
6	INTERPRETING DATA 15	285	NEW	SCSX170.0ITD
7	COMMUNICATING 55	290	NEW	SCSX570.0COM
8	FORMULATING HYPOTHESIS 6	294	NEW	SCSX080.0FHY
9	INTERPRETING DATA 16	297	NEW	SCSX180.0ITD
10	FORMULATING HYPOTHESIS 7	299	NEW	SCSX090.0FHY
11	COMMUNICATING 56	301	NEW	SCSX580.0COM
12	COMMUNICATING 57	304	NEW	SCSX590.0COM
13	COMMUNICATING 58	306	NEW	SCSX600.0COM
14	EXPERIMENT 2	308	NEW	SCSX040.0EXP
15	COMMUNICATING 59	310	NEW	SCSX610.0COM
16	INTERPRETING DATA 17	312	NEW	SCSX190.0ITD
17	COMMUNICATING 60	314	NEW	SCSX620.0COM
18	COMMUNICATING 61	316	NEW	SCSX630.0COM
19	INTERPRETING DATA 18	318	NEW	SCSX200.0ITD
20	COMMUNICATING 62	320	NEW	SCSX640.0COM
21	COMMUNICATING 63	322	NEW	SCSX650.0COM
22	COMMUNICATING 64	324	NEW	SCSX660.0COM
23	IDENTIFYING VARIABLES 10	326	NEW	SCSX120.0IDV
24	INTERPRETING DATA 19	329	NEW	SCSX210.0ITD
25	INTERPRETING DATA 20	332	NEW	SCSX220.0ITD
26	IDENTIFYING VARIABLES 11	334	NEW	SCSX130.0IDV
27	IDENTIFYING VARIABLES 12	336	NEW	SCSX140.0IDV
28	IDENTIFYING VARIABLES 13	338	NEW	SCSX150.0IDV
29	IDENTIFYING VARIABLES 14	340	NEW	SCSX160.0IDV
30	COMMUNICATING 65	342	NEW	SCSX670.0COM
31	COMMUNICATING 66	344	NEW	SCSX680.0COM
32	COMMUNICATING 67	346	NEW	SCSX690.0COM
33	COMMUNICATING 68	348	NEW	SCSX700.0COM
34	COMMUNICATING 69	350	NEW	SCSX710.0COM
35	EXPERIMENT 3	353	NEW	SCSX050.0EXP
36	EXPERIMENT 4	357	NEW	SCSX060.0EXP
37	EXPERIMENT 5	359	NEW	SCSX070.0EXP
38	EXPERIMENT 6	362	NEW	SCSX080.0EXP
39	EXPERIMENT 7	364	NEW	SCSX090.0EXP
40	INTERPRETING DATA 21	367	NEW	SCSX230.0ITD
41	EXPERIMENT 8	369	NEW	SCSX100.0EXP

CHAPTER III. DATA PROCESSING

A. Introduction

The Division of Automated Information Services (DAIS) shared some responsibility for at least nine of the major validation tasks (See Table II-1). DAIS had the sole responsibility for major task number twenty "Process Data and Preliminary Analysis." This responsibility included key punching the data, compiling the data objective by objective, maintaining quality control, computing statistics, and generating printouts according to specifications worked out with the Division of Research and Evaluation (DRE).

B. Objective Codes

The original numbering of objectives by the curriculum developers across subject areas, strands, and categories was not at all consistent. A uniform coding system adaptable for all subject areas, allowing for the addition and deletion of objectives by categories, and expediting the storage and retrieval of data was developed by DAIS in cooperation with DRE. The data processing code (See Tables II-3 through II-21, Chapter II) allows for immediate identification of subject area, school level, strand, objective number, revision status, and skill category of an objective. An explanation of the eleven-character code is presented in Table III-1.

A cross-reference table of codes assigned by the curriculum writers and new data processing codes were set up in DRE where objectives were coded as the data were received from the Pilot Schools.

C. Computer Process

The data input was provided from the Teacher Feedback Form and the Student Participation Form (See Appendix A) which were logged, edited, and coded in DRE prior to submission to DAIS. A third data input form

TABLE III-1
CODING SYSTEM FOR CBC OBJECTIVES

Six-Part Eleven-Character Code

1. Curriculum Designator: Consists of two letters identifying the subject area.

   EN = English   LA = Language Arts   SC = Science

2. School Level Designator: Consists of one letter identifying the school level.

   E = Elementary   S = Secondary

3. Strand Designator: Consists of one letter identifying the curriculum strand.

   W = Writing strand   X = Strand same as category

4. Number Designator: Consists of three fixed numbers ranging from 000 - 999 identifying an objective by number.

5. Status Designator: Consists of one number identifying the revision status of an objective.

   .0 = New or unchanged objective   .1 = Revised Objective

6. Category Designator: Consists of three letters identifying the content area within a strand encompassing a particular skill.

   CAP = Capitalization (within the writing strand)
   OBS = Observing (strand same as category)

Note: 0 stands for "zero."

developed and completed by DAIS was necessary to provide for the hypothesis of learning dependency (HLD) report discussed later in Chapter IV of this report. The HLD Form is shown in Table III-2.

DAIS developed the design schematic and computer programs for processing the data and generating the type of output necessary for reporting the validating results. Figure III-1 shows the overall data process scheme. Figures III-2 through III-4 provides a further breakdown of the data processing design by types of input.

TABLE III-2

CBC CURRICULUM VALIDATION

HYPOTHESIS OF LEARNING DEPENDENCY FORM

LANGUAGE ARTS

DATE

ENGLISH

GRADE LEVEL

SCIENCE

1. OBJECTIVE CODE
2. NEXT INSTRUCTIONAL OBJECTIVE CODE
3. NUMBER OF IMMEDIATE TERMINAL OBJECTIVES
4. NUMBER OF IMMEDIATE SUBORDINATE OBJECTIVES
5. IMMEDIATE TERMINAL OBJECTIVE CODES
6. IMMEDIATE SUBORDINATE OBJECTIVE CODES

FIGURE III-1

COMPETENCY-BASED CURRICULUM VALIDATION

DATA PROCESSING DESIGN SCHEMATIC

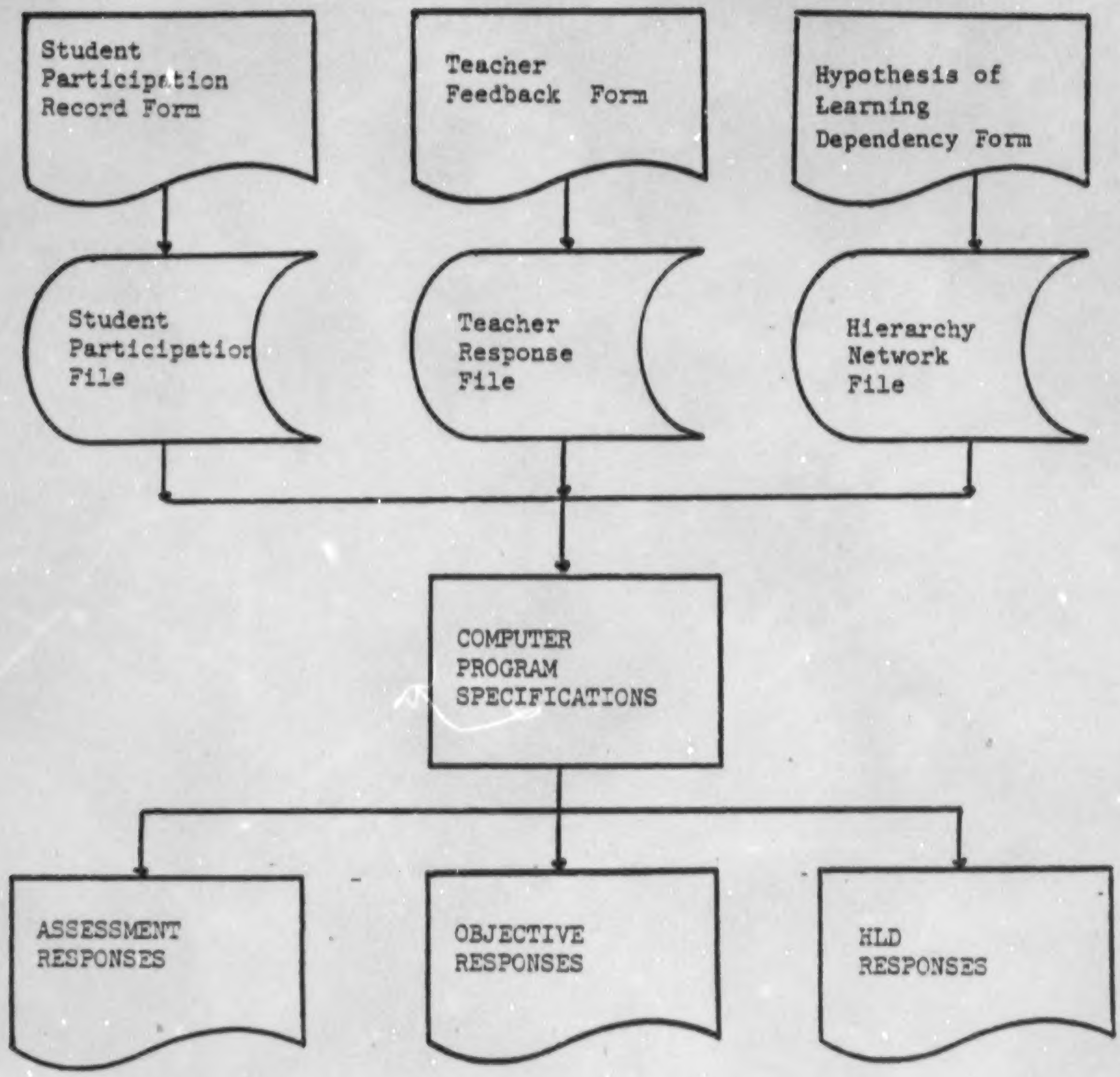

Student Participation Record Form
Teacher Feedback Form
Hypothesis of Learning Dependency Form
Student Participation File
Teacher Response File
Hierarchy Network File
COMPUTER PROGRAM SPECIFICATIONS
ASSESSMENT RESPONSES
OBJECTIVE RESPONSES
HLD RESPONSES

FIGURE III-2

COMPETENCY-BASED CURRICULUM VALIDATION

STUDENT DATA PROCESSING MODULE

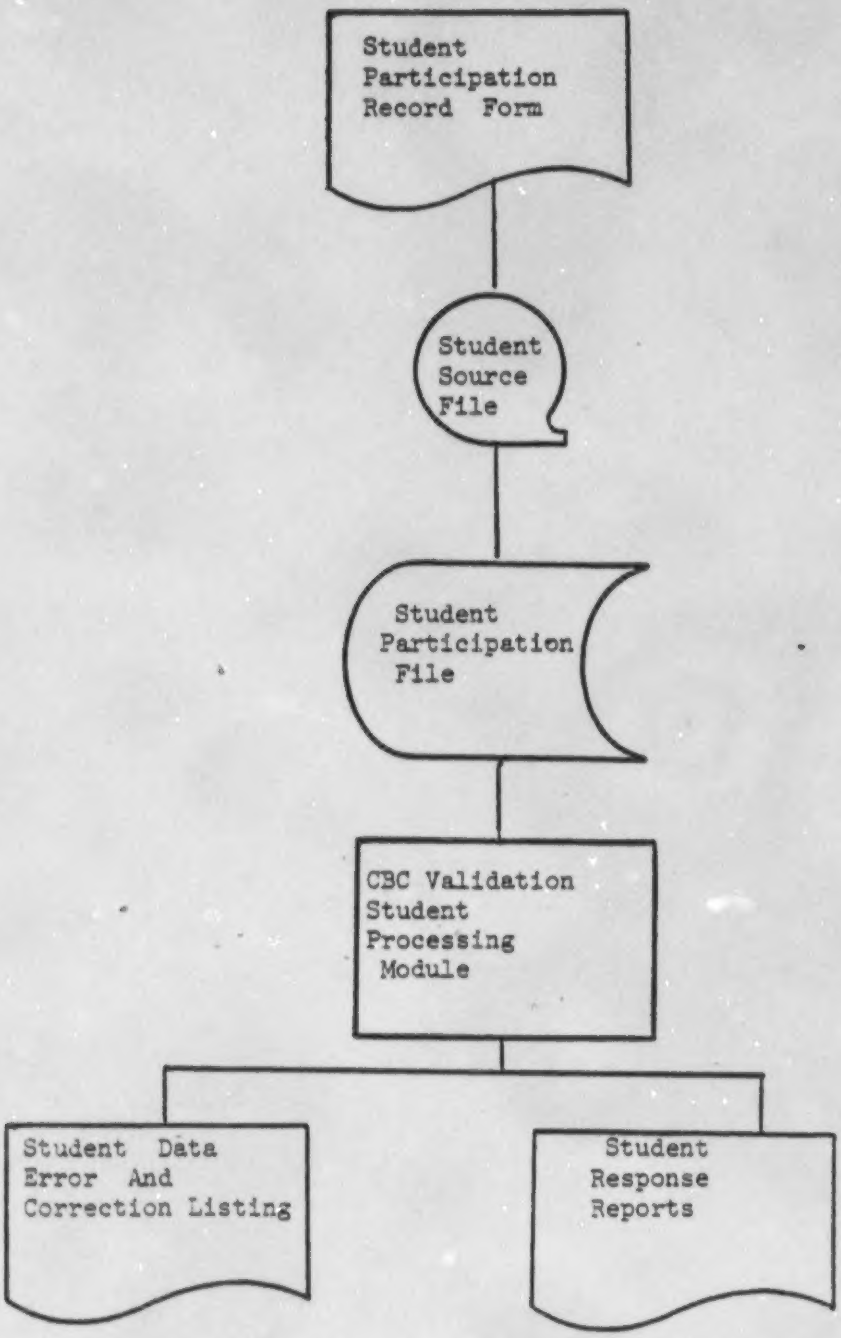

Student Participation Record Form
Student Source File
Student Participation File
CBC Validation Student Processing Module
Student Data Error And Correction Listing
Student Response Reports

FIGURE III-3

COMPETENCY-BASED CURRICULUM VALIDATION

TEACHER FEEDBACK PROCESSING MODULE

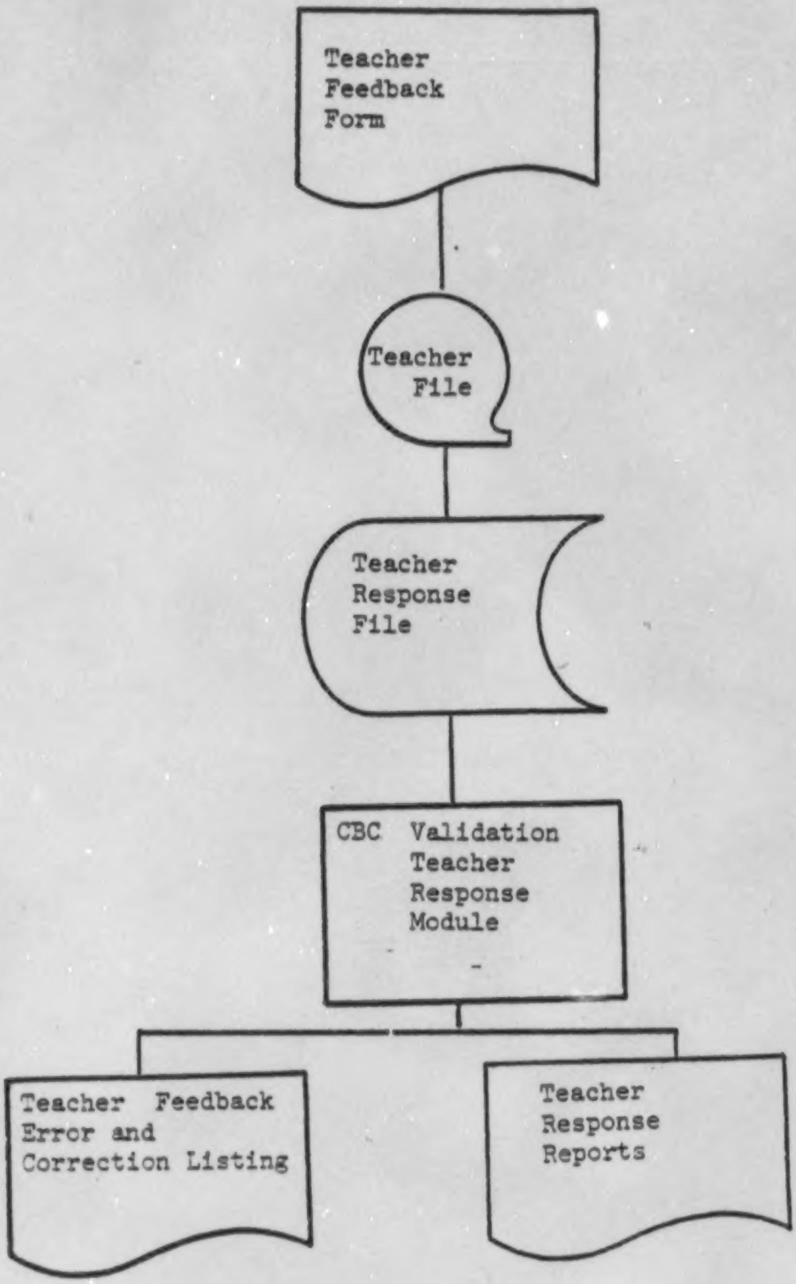
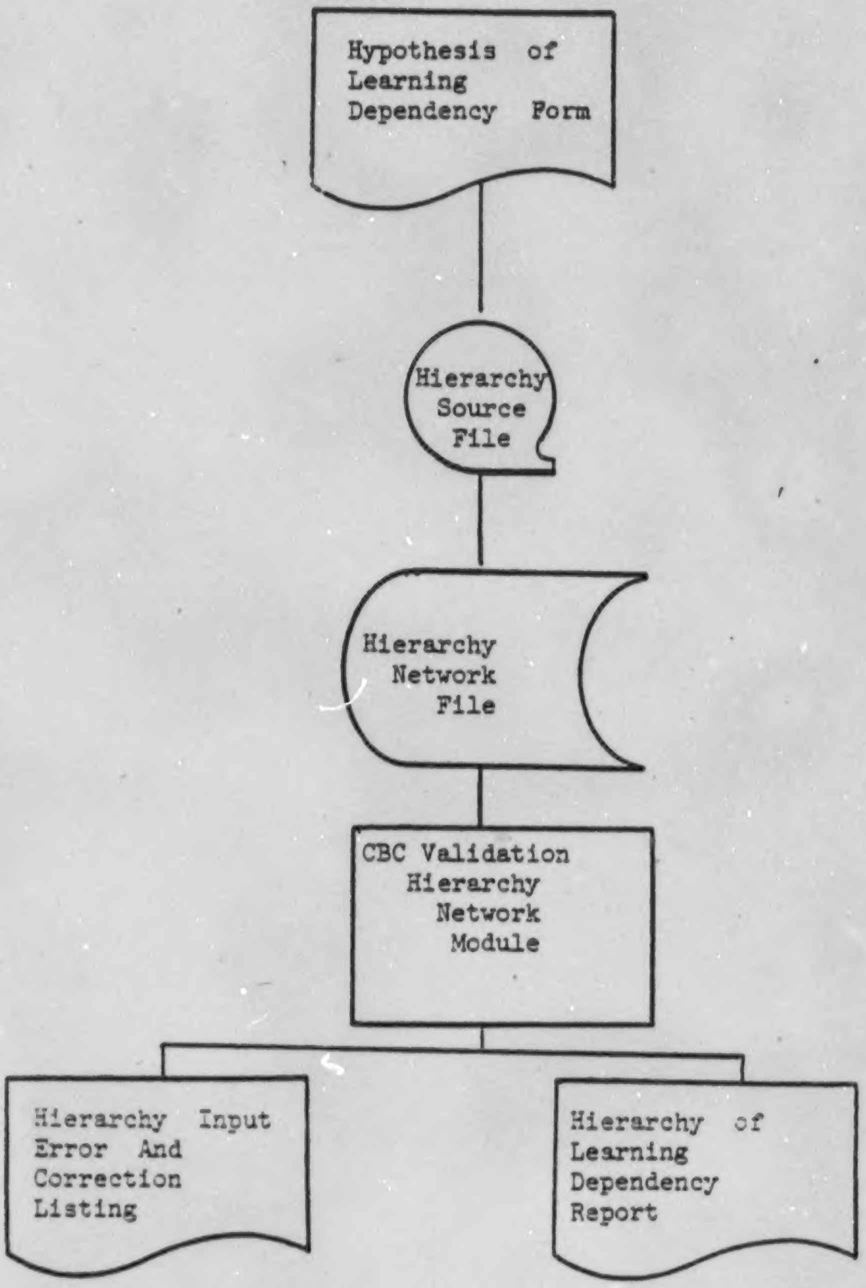

Teacher Feedback Form
Teacher File
Teacher Response File
CBC Validation Teacher Response Module
Teacher Feedback Error and Correction Listing
Teacher Response Reports

FIGURE III-4

COMPETENCY-BASED CURRICULUM VALIDATION

HIERARCHY NETWORK PROCESSING MODULE


Hypothesis of Learning Dependency Form
Hierarchy Source File
Hierarchy Network File
CBC Validation Hierarchy Network Module
Hierarchy Input Error And Correction Listing
Hierarchy of Learning Dependency Report

CHAPTER IV. VALIDATION RESULTS

A. Introduction

The field test of the language arts/English and science curricula began the first of October 1978 and continued through May 31, 1979, a period of eight months. With time out for testing, holidays, snow days, staff development days, and the seventeen day teacher strike in March 1979, the period amounted to only 128 actual teaching days. During this phase of the validation in the Pilot Schools, information was gathered on student acquisition of each behavioral objective, evidence of the CBC approach being applied, and teacher feedback and comments on the effectiveness of each objective.

Curricula materials in need of revision will be identified as a result of the analysis of the data in this chapter. Because of the nature of the CBC materials, four components are subject to alteration or replacement:

- Behavioral Objectives
- Instructional Activities
- Assessment Tasks
- Hierarchy

B. Sample Size

Even though the same schools that validated in 1977-1978 were redesignated Pilot Schools for the 1978-1979 school year, participation was voluntary. Not every Pilot School and teacher who volunteered during the first year opted to continue validating for the second year. Staffs of two elementary schools and one junior high school, new to the language arts/English and science validation effort, volunteered as replacements for three Pilot Schools that did not validate in 1978-1979. Thus, a total of 22 schools (13 elementary and 9 junior highs) validated the language arts/English and science curricula for the second year. See Tables B-1 and B-2 in Appendix B.

At least one teacher validated at each grade level kindergarten through nine (there were no kindergarten science materials). In all, 61 teachers who validated the language arts/English curriculum reported the progress of 1,530 students and 45 teachers who validated the science curriculum reported on 1,073 students. The number of teachers and students by grade levels is shown in Table IV-1.

C. Objectives Validated

Appendix C has Tables C-1 through C-10 which show the language arts/English objectives in hierarchies by instructional levels PreK-K through nine. Science objectives in hierarchies by levels one through nine are shown in Appendix C, Tables C-11 through C-17. Table C-18 presents the total number of objectives in the two curricula by levels. There were a total of 425 objectives to be validated in the language arts/English curriculum and 315 objectives in the science curriculum to be validated.

One initial step to validating was the pretesting of the students to determine their instructional levels and thus, their placement in the hierarchy. Once placed at their entry level students progressed through the hierarchy as each objective in sequence was mastered. Due to the time required in teaching each instructional triad (one behavioral objective, two instructional activities and three assessment tasks) and the availability of only 128 instructional days, all of the 740 language

TABLE IV-1

NUMBER OF SCHOOLS, TEACHERS, AND STUDENTS REPRESENTED BY VALIDATION DATA RECEIVED, 1978-79

Grade Levels	kgn.	1	2	3	3/4	4	5	5/6	6	Subtotal
LANGUAGE ARTS/ENGLISH										
Schools										11
Teachers	1	9	5	7	1	7	5		7	41
Students	27	217	125	167	23	154	92		189	994
SCIENCE										
Schools										10
Teachers		9	7	6	1	7	2	1	4	36
Students		206	164	151	20	155	41	27	81	845

Grade Levels	7	8	9	Subtotal	Total [1]
LANGUAGE ARTS/ENGLISH					
Schools				9	20
Teachers	5	7	11	20	61
Students	122	154	260	536	1530
SCIENCE					
Schools				6	16
Teachers	3	4	1	9	45
Students	70	94	24	228	1073

[1] Total for language arts/English and science:

Pilot Schools = 22 (13 Elementary, 9 Junior High)

Teachers = 106 (77 Elementary, 29 Junior High)

Students = 2,603 (1,839 Elementary, 764 Junior High) arts/English and science objectives were not validated. Overall, only thirty-eight percent of the language arts/English objectives and fifty-three percent of the science objectives were validated. Table IV-2 gives the percentage of objectives validated by subject area and instructional level.

Only those objectives validated on grade level (PreK/K objectives taught to kindergarten students, level one objectives taught to first graders, etc.) are analyzed in this report. These objectives are shown in Tables IV-3 and IV-4. Also shown are the number of students who attempted the objective and the percent who mastered the objective. Those few objectives taught out of grade level are shown in Appendix J.

D. Observations

One of the major tasks incorporated into the validation strategies was that of classroom observation. The Pilot School principal or a designee was given the responsibility for observing the classroom of each validating teacher at four specified time periods during the school year (See Table A-4 in Appendix A). The purpose of the observations was to verify the extent to which CBC was being utilized in the instructional program.

Less than one-half of the total required observations were completed and reported. For each observation there were eight items to be checked designating a CBC action or some CBC evidence as being observed, not observed, or not applicable. The total possible aggregate responses for all items on the completed observation forms amounted to 1,424. Of that number 95 or seven percent were checked as not observed. This means that over ninety-percent of the responses indicated that there was some evidence of the CBC approach being utilized when the validating classrooms were observed.

TABLE IV-2

PERCENT OF THE LANGUAGE ARTS/ENGLISH AND SCIENCE OBJECTIVES VALIDATED BY SUBJECT AREA AND BY INSTRUCTIONAL LEVEL

Instructional Level	Percent Validated [1] Language Arts/English	Science
PreK/K	40%	N/A
1	88%	100%
2	68%	100%
3	43%	67%
4	44%	87%
5	29%	54%
6	39%	30%
7	32%	40%
8	28%	33%
9	24%	27%
PreK/9	38%	53%

N/A = Not applicable, there were no science PreK/K objectives for 1978-1979

[1] Includes all objectives validated regardless of whether or or not the instructional level of the objective matched the grade level designation of the student. For example, some first grade students began work initially with the PreK/K Language Arts/English objectives. Those objectives are included in these percentages.

TABLE IV-3
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH LANGUAGE ARTS/ENGLISH OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
PreK/K	L-1	LAEX030.0LIS	24	96%
1	L-3	LAEX050.0LIS	161	58% *
	LT-3	LAEX050.0LIT	43	93%
	LT-4	LAEX060.0LIT	61	64% *
	GU-1	LAEW030.0GRA	175	86%
	GU-2	LAEW040.0GRA	67	70% *
	GU-3	LAEW050.0GRA	101	89%
	GU-4	LAEW060.0GRA	68	81% *
	GU-5	LAEW070.0GRA	78	87%
	GU-6	LAEW080.0GRA	77	78% *
	SS-5	LAEW070.0SEN	55	96%
	SS-6	LAEW080.1SEN	12	33% *
	SS-7	LAEW090.1SEN	11	27% *
	L-4	LAEX060.0LIS	36	94%
	SP-4	LAEX060.0SPK	11	64% *
	P-1	LAEW030.1PUN	21	100%
	P-2	LAEW040.1PUN	12	83% *
	L-5	LAEX070.0LIS	41	93%
	SP-5	LAEX070.0SPK	17	82% *
2	LT-5	LAEX070.0LIT	72	69% *
	LT-6	LAEX080.0LIT	45	71% *
	L-6	LAEX080.0LIS	80	73% *
	L-7	LAEX090.0LIS	73	84% *

TABLE IV-3 (continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH LANGUAGE ARTS/ENGLISH OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
2 (cont.)	SP-6	LAEX080.0SPK	59	100%
	SP-7	LAEX090.0SPK	52	56% *
	GU-10	LAEW120.0GRA	70	74% *
	GU-11	LAEW130.0GRA	73	79% *
	GU-12	LAEW140.0GRA	28	89%
	GU-13	LAEW150.0GRA	49	80% *
	SS-10	LAEW120.0SEN	44	77% *
	SS-11	LAEW130.1SEN	46	43% *
	C3	LAEW050.1CAP	25	48% *
	P-5	LAEW070.1PUN	51	100%
	P-6	LAEW080.1PUN	31	100%
	P-7	LAEW090.1PUN	27	70% *
	P-8	LAEW100.1PUN	49	31% *
	P-10	LAEW120.1PUN	31	0% *
	SS-9	LAEW110.1SEN	19	95%
3	L-8	LAEX100.0LIS	105	93%
	SS-12	LAEW140.0SEN	88	94%
	SP-8	LAEX100.0SPK	71	100%
	SP-9	LAEX110.0SPK	74	95%
	GU-17	LAEW190.0GRA	72	90%
	GU-18	LAEW200.0GRA	43	100%
	C-6	LAEW080.1CAP	24	88%
	SP-10	LAEX120.0SPK	13	100%

TABLE IV-3 (continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH LANGUAGE ARTS/ENGLISH OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
3 (cont.)	GU-19	LAEW210.0GRA	35	97%
	SS-13	LAEW150.1SEN	25	20% *
	SS-14	LAEW160.0SEN	25	52% *
	SS-15	LAEW170.1SEN	15	60% *
	SS-16	LAEW180.0SEN	18	28% *
4	L-9	LAEX110.0LIS	120	80% *
	SP-11	LAEX130.0SPK	78	68% *
	CW-4	LAEW060.0CRE	68	65% *
	GU-26	LAEW280.0GRA	64	66% *
	SS-20	LAEW220.1SEN	26	31% *
	C-11	LAEW130.1CAP	19	100%
	GU-27	LAEW290.0GRA	13	100%
	GU-28	LAEW300.0GRA	12	100%
	GU-29	LAEW310.0GRA	18	100%
	GU-31	LAEW330.0GRA	18	100%
5	L-10	LAEX120.0LIS	55	71% *
	ST-6	LAEX080.0STU	44	41% *
	ST-7	LAEX090.0STU	34	82% *
	LT-15	LAEX170.0LIT	39	100%
	LT-16	LAEX180.0LIT	26	100%
	SP-13	LAEX150.0SPK	20	95%
	SP-14	LAEX160.0SPK	17	82% *
	L-11	LAEX130.0LIS	20	100%

TABLE IV-3 (continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH LANGUAGE ARTS/ENGLISH OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
5 (cont.)	GU-32	LAEW340.0GRA	42	100%
	GU-33	LAEW350.0GRA	28	100%
	SS-25	LAEW270.1SEN	28	100%
	SS-26	LAEW280.1SEN	28	100%
	SS-27	LAEW290.1SEN	28	100%
	SS-28	LAEW300.1SEN	28	100%
	SS-29	LAEW310.1SEN	28	100%
6	L-12	LAEX140.0LIS	179	97%
	L-13	LAEX150.0LIS	132	92%
	L-14	LAEX160.0LIS	106	100%
	L-15	LAEX170.0LIS	78	100%
	L-16	LAEX180.0LIS	135	79% *
	LT-20	LAEX220.0LIT	119	74% *
	LT-21	LAEX230.0LIT	94	76% *
	GU-49	LAEW510.0GRA	159	89%
	GU-50	LAEW520.0GRA	150	89%
	GU-51	LAEW530.0GRA	136	94%
	GU-52	LAEW540.0GRA	109	78% *
	GU-53	LAEW550.0GRA	132	82% *
	ST-8	LAEX100.0STU	54	70% *
	ST-9	LAEX110.0STU	27	89%
	SS-33	LAEW350.0SEN	28	75% *

TABLE IV-3 (continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH LANGUAGE ARTS/ENGLISH OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
7	C-1	ENSW030.1CAP	10	20% *
	C-2	ENSW040.0CAP	9	44% *
	C-3	ENSW050.1CAP	9	56% *
	C-4	ENSW060.0CAP	10	40% *
	C-5	ENSW070.0CAP	10	50% *
	C-6	ENSW080.0CAP	9	56% *
	POS-1	ENSW030.1POS	45	29% *
	SS-1	ENSW030.1SEN	77	62% *
	SS-2	ENSW040.1SEN	76	72% *
	SS-3	ENSW050.1SEN	66	50% *
	SS-4	ENSW060.0SEN	50	70% *
	SS-5	ENSW070.0SEN	18	56% *
	SS-6	ENSW080.1SEN	22	68% *
	NF-1	ENSL030.0NON	24	63% *
	NF-2	ENSL040.0NON	14	21% *
8	L-4	ENSX060.0LIS	15	100%
	SP-5	ENSX070.0SPK	14	100%
	SP-6	ENSX080.0SPK	15	100%
	S-5	ENSW070.1SPE	19	84% *
	S-6	ENSW080.1SPE	20	80% *
	S-7	ENSW090.1SPE	40	45% *
	S-8	ENSW100.1SPE	38	63% *
	POS-6	ENSW080.1POS	57	14% *

TABLE IV-3 (continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH LANGUAGE ARTS/ENGLISH OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
8 (cont.)	POS-7	ENSW090.1POS	29	7% *
	POS-9	ENSW110.1POS	29	10% *
	POS-10	ENSW120.1POS	28	0% *
	POS-11	ENSW130.1POS	27	7% *
	LSS-3	ENSL050.0SHO	27	85%
	LSS-4	ENSL060.0SHO	24	4% *
	LSS-6	ENSL080.0SHO	28	43% *
9	S-9	ENSW110.1SPE	129	66% *
	S-10	ENSW120.1SPE	58	50% *
	S-11	ENSW130.0SPE	62	79% *
	SV-10	ENSW120.1SVA	77	75% *
	SV-11	ENSW130.1SVA	79	58% *
	SV-12	ENSW140.1SVA	72	49% *
	P-8	ENSW100.1PUN	70	59% *
	SS-18	ENSW200.1SEN	71	55% *
	M-7	ENSL090.0MYT	10	50% *
	D-3	ENSL050.0DRA	17	59% *
	D-4	ENSL060.0DRA	13	85%
	D-5	ENSL070.0DRA	10	50% *

* = Below the .85 standard

TABLE IV-4
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH SCIENCE OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
1	OBS-1	SCEX030.1OBS	155	47% *
	OBS-2	SCEX040.1OBS	139	60% *
	OBS-3	SCEX050.1OBS	168	80% *
	OBS-4	SCEX060.1OBS	161	55% *
	OBS-5	SCEX070.1OBS	139	54% *
	OBS-6	SCEX080.1OBS	139	68% *
	OBS-7	SCEX090.0OBS	93	98%
	CL-1	SCEX030.0CLA	39	82% *
	CL-2	SCEX040.0CLA	33	82% *
	ME-1	SCEX030.0MEA	68	44% *
	ME-2	SCEX040.0MEA	11	100%
	ME-3	SCEX050.0MEA	35	71% *
	OBS-15	SCEX170.0OBS	50	74% *
	OBS-16	SCEX180.0OBS	24	67% *
	OBS-17	SCEX190.0OBS	47	91%
	OBS-18	SCEX200.1OBS	43	100%
	OBS-19	SCEX210.0OBS	19	100%
	ME-4	SCEX060.0MEA	23	100%
	OBS-8	SCEX100.0OBS	63	98%
	OBS-9	SCEX110.1OBS	18	50% *
	OBS-10	SCEX120.1OBS	30	100%
	OBS-11	SCEX130.0OBS	30	100%
	OBS-12	SCEX140.0OBS	36	100%
	OBS-13	SCEX150.1OBS	38	95%
	OBS-14	SCEX160.1OBS	37	100%
	CL-3	SCEX050.0CLA	27	100%

TABLE IV-4 (Continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH SCIENCE OBJECTIVE BY LEVEL

Objective			Student	
Level	Number	Code	# Attempted	% Mastered
2	UST-1	SCEX030.0UST	103	35% *
	UST-2	SCEX040.0UST	81	56% *
	UST-3	SCEX050.0UST	86	88%
	UST-4	SCEX060.0UST	77	66% *
	UST-5	SCEX070.0UST	87	23% *
	ME-5	SCEX070.0MEA	47	55% *
	ME-6	SCEX080.0MEA	33	58% *
	ME-7	SCEX090.0MEA	33	30% *
	ME-8	SCEX100.0MEA	33	42% *
	OBS-20	SCEX220.1OBS	33	67% *
	OBS-21	SCEX230.0OBS	17	76% *
	CL-4	SCEX060.0CLA	30	87%
	OBS-22	SCEX240.0OBS	31	26% *
	OBS-23	SCEX250.0OBS	30	90%
	OBS-24	SCEX260.0OBS	42	86%
	OBS-25	SCEX270.1OBS	73	59% *
	OBS-26	SCEX280.0OBS	31	100%
	CL-5	SCEX070.0CLA	33	100%
	OBS-27	SCEX290.1OBS	51	71% *
	OBS-28	SCEX300.0OBS	27	100%
	OBS-29	SCEX310.1OBS	25	100%
	OBS-30	SCEX320.0OBS	33	100%
3	UST-6	SCEX080.0UST	87	60% *
	UST-7	SCEX090.0UST	65	35% *
	INP-5	SCEX070.0INP	63	46% *
	ME-11	SCEX130.0MEA	25	80% *

TABLE IV-4 (Continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH SCIENCE OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
3 (cont.)	OBS-31	SCEX330.1OBS	60	88%
	ME-14	SCEX160.0MEA	22	32% *
	UST-8	SCEX100.0UST	22	23% *
	UST-9	SCEX110.0UST	23	30% *
	OBS-32	SCEX340.0OBS	81	70% *
	OBS-33	SCEX350.1OBS	69	49% *
	OBS-34	SCEX360.1OBS	46	67% *
	CO-2	SCEX040.0COM	23	87%
	CO-1	SCEX030.0COM	23	83% *
4	CO-5	SCEX070.0COM	122	70% *
	CO-6	SCEX080.0COM	103	35% *
	CL-8	SCEX100.0CLA	99	24% *
	OBS-37	SCEX390.1OBS	78	62% *
	OBS-38	SCEX400.1OBS	50	0% *
	INP-9	SCEX110.0INP	27	63% *
	CL-9	SCEX110.0CLA	41	22% *
	CL-10	SCEX120.0CLA	34	79% *
	CO-4	SCEX060.0COM	37	24% *
	CL-11	SCEX130.0CLA	45	16% *
	CL-12	SCEX140.0CLA	41	85%
	ME-15	SCEX170.0MEA	45	0% *
	ME-16	SCEX180.0MEA	44	0% *
	ME-17	SCEX190.0MEA	64	16% *
	ME-18	SCEX200.0MEA	45	51% *
	ME-19	SCEX210.0MEA	50	54% *

TABLE IV-4 (Continued)

NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH SCIENCE OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
4 (cont.)	ME-20	SCEX220.0MEA	48	58% *
	UST-10	SCEX120.0UST	23	22% *
	UST-11	SCEX130.0UST	16	0% *
	UST-12	SCEX140.0UST	16	0% *
	UST-13	SCEX150.0UST	18	6% *
	UST-14	SCEX160.0UST	18	0% *
	OBS-36	SCEX380.1OBS	95	37% *
	INP-8	SCEX100.0INP	34	35% *
	INP-6	SCEX080.0INP	36	86%
	CO-3	SCEX050.0COM	19	42% *
	INP-7	SCEX090.0INP	20	40% *
	INP-11	SCEX130.0INP	18	44% *
	OBS-39	SCEX410.1OBS	12	0% *
5	OBS-43	SCEX450.1OBS	40	65% *
	CO-9	SCEX110.0COM	37	89%
	UST-15	SCEX170.0UST	15	87%
	UST-16	SCEX180.0UST	17	94%
	UST-17	SCEX190.0UST	14	86%
	UST-18	SCEX200.0UST	14	100%
	UST-19	SCEX210.0UST	10	70% *
	OBS-41	SCEX430.1OBS	17	59% *
6	CO-11	SCEX130.0COM	66	70% *
	CO-12	SCEX140.0COM	41	61% *
	CO-16	SCEX180.0COM	41	83% *
	CO-14	SCEX160.0COM	28	86%

TABLE IV-4 (Continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH SCIENCE OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
6 (cont.)	CO-13	SCEX150.0COM	80	71% *
	CO-15	SCEX170.0COM	17	65% *
	CO-18	SCEX200.0COM	33	48% *
	CO-20	SCEX220.0COM	18	89%
	UST-23	SCEX250.0UST	11	100%
7	CO-1	SCSX030.1COM	66	70% *
	CO-2	SCSX040.1COM	66	85%
	CO-3	SCSX050.1COM	64	83% *
	FHY-1	SCSX030.FHY	66	79% *
	IDV-1	SCSX030.0IDV	65	71% *
	IDV-2	SCSX040.1IDV	63	63% *
	IDV-3	SCSX050.0IDV	36	78% *
	CO-4	SCSX060.1COM	39	67% *
	CO-5	SCSX070.0COM	60	58% *
	ITD-1	SCSX030.1ITD	37	76% *
	CL-1	SCSX030.1CLA	68	68% *
	ME-1	SCSX030.1MEA	60	42% *
	CO-6	SCSX080.1COM	33	52% *
	ME-2	SCSX040.1MEA	38	61% *
	ME-3	SCSX050.1MEA	37	49% *
	ITD-2	SCSX040.1ITD	19	74% *
	ITD-3	SCSX050.1ITD	17	24% *
	CL-2	SCSX040.1CLA	28	71% *
	CL-3	SCSX050.0CLA	34	68% *
	CL-4	SCSX060.1CLA	24	79% *
	CL-5	SCSX070.0CLA	21	100%

TABLE IV-4 (Continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH SCIENCE OBJECTIVE BY LEVEL

	Objective		Student	
Level	Number	Code	# Attempted	% Mastered
7 (cont.)	ITD-4	SCSX060.0ITD	36	92%
	CO-7	SCSX090.0COM	11	64% *
	CO-8	SCSX100.0COM	17	71% *
	ME-4	SCSX060.0MEA	16	88%
	CL-6	SCSX080.0CLA	21	100%
8	CO-30	SCSX320.0COM	68	59% *
	CO-31	SCSX330.0COM	55	84% *
	ME-7	SCSX090.0MEA	62	79% *
	ME-5	SCSX070.0MEA	19	74% *
	ME-6	SCSX080.0MEA	67	81% *
	ME-8	SCSX100.0MEA	66	71% *
	IDV-6	SCSX080.0IDV	41	51% *
	ITD-11	SCSX130.0ITD	18	78% *
	CO-33	SCSX350.0COM	23	87%
	CO-34	SCSX360.0COM	41	73% *
	CO-35	SCSX370.0COM	28	68% *
	CO-44	SCSX460.0COM	11	73% *
	CO-45	SCSX470.0COM	14	93%
	IDV-8	SCSX100.0IDV	13	92%
	ME-13	SCSX150.0MEA	11	82% *
9	FHY-5	SCSX070.0FHY	24	71% *
	EXP-1	SCSX030.0EXP	14	29% *
	ITD-15	SCSX170.0ITD	13	77% *
	CO-55	SCSX570.0COM	15	87%
	FHY-6	SCSX080.0FHY	10	100%

TABLE IV-4 (Continued)
NUMBER OF STUDENTS WHO ATTEMPTED THE OBJECTIVE AND THE PERCENT OF STUDENTS WHO MASTERED EACH SCIENCE OBJECTIVE BY LEVEL

Objective			Student	
Level	Number	Code	# Attempted	% Mastered
9 (cont.)	ITD-16	SCSX180.0ITD	3	100%
	CO-57	SCSX590.0COM	20	90%
	CO-58	SCSX600.0COM	21	86%
	EXP-2	SCSX040.0EXP	19	79% *

* = Below the .85 standard.

E. Analysis

The instructional triads (the behavior objective with two instructional activities and three assessment tasks) for each subject area are sequentially arranged from simple to complex to form learning hierachies (Appendix C). Each hierarchy is organized into units of dependency called hypotheses of learning dependency, or HLD's. The principle applied to the design of every HLD is that the immediate subordinate objectives must be mastered before the terminal objective can be mastered.

Because the fundamental organizing element of each learning hierarchy is the hypothesis of learning dependency, the HLD results are examined first starting from the entry level and working up to the terminal objectives(s). Three relationships are examined for each HLD: adequacy, consistency, and completeness. The adequacy relationship ratio assesses the correctness of the inference, "If a learner possesses all of the immediate subordinate behaviors of the HLD and has been given two complete instructional activities designed to aid the learner in the acquisition of the terminal behavior of the HLD, then the learner will possess the terminal behavior of the HLD."[1] The consistency relationship ratio assesses the correctness of the inference, "If a learner possesses the terminal behavior of the HLD, then the learner possesses all of the immediate subordinate behaviors of the HLD."[2] The third relationship, completeness, assesses the correctness of the inference that the learner can successfully enter the HLD at the prescribed instructional level.[3]

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[1] J. Marvin Cook and Henry H. Walbesser. How to Meet Accountability. Beltsville, Maryland: Walbesser and Associates, 1973, p. 120.

[2] Ibid., p. 120.

[3] Ibid., p. 121.

The standard of .85 was established for the desired level of each of the three relationships within each HLD. Last year for the initial validation of learning hierarchies the standard of .80 was used.[4] Failure to meet the .85 standard in this analysis, on any one of the three relationships, indicates that the HLD is in need of revision. The following procedures are used to determine what changes or corrections are necessary:

When "adequacy" is low the following checks are to be made:

a. Check the possibility that the TERMINAL objective (in the instructional triad) needs revision first by examining assessment task results (Appendix D) for a poor item and second by examining each assessment task and each instructional activity for:

  - o Item errors
  - o Performance agreement of triad components
  - o Appropriateness and Clarity (Teacher Ratings Appendix F)
  - o Effectiveness and Attitudes Towards (Teacher Ratings Appendix F)
  - o Power level (Puissance Index Appendix E)
  - o Reading complexity (FOG Grade Appendix E)
  - o Materials or equipment required for instruction

b. Check the possibility that there is too great a jump between the subordinate objective(s) and the terminal objective of the HLD.

When "consistency" is low:

a. Check the possibility that the SUBORDINATE objective (in the instructional triad) is in need of revision, first by examining the assessment task results for a poor item (Appendix D) and second by examining each assessment task and each instructional activity the same as in (a) above.

b. Check the possibility of omitting the immediate subordinate objective(s).

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[4] More severe demands should be made on each HLD with each new tryout, ultimately working to a standard of .95 or higher.

When "completeness" is low:

a. The indication is that the student did not master the subordinate objective(s) nor the terminal objective in the HLD.

B. Examine the possibility of extending the hierarchy by adding objectives which build upon the behaviors that the student already possesses.

Adequacy, consistency, and completeness ratios are only valid for HLD's completed by ten or more students. Therefore, HLD's completed by fewer than ten students are not shown or discussed. Ratios are not computed when only a part of the HLD has been completed by students. Failure to meet the .85 standard on one or more of the three relationships - adequacy, consistency, or completeness - calls for a decision to revise, add, or delete instructional triads. Research in such activity has shown that attempting to correct one relationship per revision is a better strategy than trying to deal with all relationships at once. Further, the best results are obtained by attempting to correct the relationship with the lowest ratio first.

The next analysis after the examination of all HLD's is one that is made of individual instructional triads. Each instructional triad in which the behavioral objective was not mastered by at least 85 percent of the students (Tables IV-3 and IV-4) and which was not previously examined as a subordinate or terminal objective of an HLD, is analyzed. First, examine each assessment task result (Appendix D) and second, examine each assessment task and each instructional activity for:

- Item errors
- Performance agreement of triad components
- Appropriateness and Clarity (Teacher Ratings Appendix F)
- Effectiveness and Attitudes Toward (Teacher Ratings Appendix F)
- Power level (Puissance Index Appendix E)
- Reading complexity (FOG Grade Appendix E)
- Materials or equipment required for instruction

The analyses attempt to identify the most likely cause or causes for the need to make changes or corrections in the triads by following the procedures outlined. The first step is always to examine the assessment task results. This is done in order to determine whether the nonacquisition of the objective is a result of one poor assessment task. A poor assessment task is considered to be one that contributed most often to the nonmastery of an objective.[5]

A facsimile and an interpretation of the kinds of tables in Appendix D displaying the assessment task results are shown here:

		Eight possible combinations of Assessment Task Results							
Behavioral Objective	Level	A.T. 1 2 3 + + +	A.T. 1 2 3 + + -	A.T. 1 2 3 + - +	A.T. 1 2 3 + - -	A.T. 1 2 3 - + +	A.T. 1 2 3 - + -	A.T. 1 2 3 - - +	A.T. 1 2 3 - - -
1	1	78%	2%	12%	3%	0%	0%	2%	3%

The results shown above reveal that for objective 1, level 1:

- 78% of the students successfully completed all three assessment tasks (A.T. 1,2, and 3);
- 2% of the students successfully completed tasks 1 and 2 but not A.T. 3;
- 12% of the students successfully completed A.T. 1 and 3 but not A.T. 2;
- 3% of the students successfully completed A.T. 1 but not A.T. 2 and 3;
- 0% (none) of the students successfully completed A.T. 2 and 3 but not A.T. 1;
- 0% (none) of the students successfully completed A.T. 2 but not A.T. 1 and 3;
- 2% of the students successfully completed A.T. 3 but not A.T. 1 and 2;
- 3% of the students did not successfully complete any of the tasks.

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[5] Students must successfully complete all three assessment tasks to demonstrate mastery of an objective.

In the facsimile objective 1 level 1 did not meet the .85 standard because only 78% of the students successfully mastered the objective. The fact that twelve percent of the students did not master assessment task 2 while mastering A.T. 1 and 3 indicates that A.T. 2 contributed most often to the nonmastery. Assessment task 2 appears to be a poor item. Further analysis, i.e.; performance agreement, teacher ratings, power level, etc., would most likely indicate what revisions are necessary for improving assessment task 2.

Table IV-5 for language arts/English and Table IV-6 for science show for each HLD the ratios for the three relationships along with the decision to revise or accept the instructional triad.

1. Discussion of the Language Arts/English Objectives. In Table J-1 (Appendix J) you will find the objectives that were taught to students in a different grade level than that designated for the objective. For example the first objective listed in the table (SP-1) is a PreK/K level objective and was taught to twenty-two students in a combination third-fourth grade class. In all there are fifty objectives in Table J-1. In many cases the lower level objectives were given for practice or to sharpen skills prior to entering the hierarchy. In any case the results are not used in this report and no analysis has been attempted.

The data that are used for analysis in this report were derived from those objectives taught on grade level, taught in instructional sequence, correctly identified on the data forms submitted by teachers, and submitted complete with student identification numbers. The one hundred

TABLE IV-5

RATIOS OF THE THREE RELATIONSHIPS FOR EACH HLD IN THE LANGUAGE ARTS/ENGLISH HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 1					
GU-1	LT-4	.88	.66*	.50*	Revise
GU-1	LT-3, LT-4	.88	1.00	.66*	Revise
GU-2	GU-1	.76*	.92	.92	Revise
GU-3	GU-2	.85	.81*	.93	Revise
GU-4	GU-2	.79*	.88	.92	Revise
GU-5	GU-3	.90	.90	.81*	Revise
GU-5	GU-3, GU-4	1.00	.95	.89	Accept
SS-5	GU-6	.80*	.33*	1.00	Revise
GU-6	GU-5	.88	.96	.87	Accept
SS-6	GU-6	.80*	1.00	.36*	Revise
SS-7	SS-6	.66*	1.00	.28*	Revise
LT-4	L-3	.84*	.91	.74*	Revise
SP-4	L-4	.75*	1.00	1.00	Revise
SP-5	L-5	.90	.76*	1.00	Revise
Level 2					
C-3	SS-11	.69*	.75*	.56*	Revise
P-5	C-3	1.00	.48*	1.00	Revise
P-6	C-3	1.00	.48*	1.00	Revise
P-7	C-3	1.00	.70*	.70*	Revise
GU-10	SP-6, SP-7	.96	.75*	.72*	Revise
GU-11	GU-10	.71*	.83*	.90	Revise
SS-11	SS-10	.51*	.94	.70*	Revise
GU-12	GU-11	1.00	1.00	1.00	Accept
GU-13	GU-11	.80*	.90	.90	Revise

[1] The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

TABLE IV-5 (Continued)

RATIOS OF THE THREE RELATIONSHIPS FOR EACH HLD IN THE LANGUAGE ARTS/ENGLISH HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 2 (cont.)					
L-6	LT-6	.42*	.57*	.68*	Revise
LT-6	LT-5	.90	.90	.74*	Revise
SP-6	L-7	1.00	.41*	1.00	Revise
SP-6	L-6, L-7	1.00	.70*	1.00	Revise
L-7	LT-6	1.00	.40*	1.00	Revise
SP-7	L-6, L-7	.68*	.73*	.77*	Revise
Level 3					
SS-12	L-8	.98	.97	.98	Accept
GU-17	SP-9	.90	.93	1.00	Accept
GU-18	SP-9	1.00	.87	1.00	Accept
SP-8	SS-12	1.00	1.00	1.00	Accept
SP-9	SP-8	.97	1.00	1.00	Accept
Level 4					
CW-4	SP-11	.87	.85	.69*	Revise
SS-20	GU-26	.33*	.37*	.20*	Revise
GU-26	CW-4	.79*	.85	.69*	Revise
SP-11	L-9	.76*	.80*	.70*	Revise
Level 5					
SS-26	SS-25	1.00	1.00	1.00	Accept
SS-27	SS-26	1.00	1.00	1.00	Accept
SS-28	SS-27	1.00	1.00	1.00	Accept
ST-6	L-10	.56*	1.00	.48*	Revise
ST-7	L-10	1.00	.50*	.80*	Revise
LT-15	ST-6, ST-7	1.00	.05*	1.00	Revise
LT-16	LT-15	1.00	1.00	1.00	Accept

[1] The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

TABLE IV-5 (Continued)

RATIOS OF THE THREE RELATIONSHIPS FOR EACH HLD IN THE LANGUAGE ARTS/ENGLISH HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 6					
SS-33	ST-9	.87	1.00	.87	Accept
GU-49	LT-21	.89	.78*	.90	Revise
GU-50	GU-49	.92	.94	.95	Accept
GU-51	GU-49	.95	.94	.98	Accept
GU-52	GU-51	1.00	1.00	1.00	Accept
GU-52	GU-50	.75*	1.00	.33*	Revise
GU-52	GU-50,GU-51	.94	.94	.91	Accept
GU-53	GU-50	1.00	.75*	.33*	Revise
GU-53	GU-50,GU-51	.93	.94	.91	Accept
ST-8	GU-53	1.00	1.00	.75*	Revise
ST-8	GU-53,GU-52	1.00	.77*	.69*	Revise
ST-9	ST-8	.88	1.00	1.00	Accept
L-16	L-14	.60*	1.00	1.00	Revise
L-16	L-12	.50*	1.00	1.00	Revise
L-16	L-12,L-14	.16*	.75*	.60*	Revise
L-16	L-12,L-13	.91	.97	1.00	Accept
L-16	L-12,L-13,L-14	.94	.80*	1.00	Revise
LT-20	L-16	.61*	.63*	.87	Revise
LT-21	LT-20	.74*	.66*	.84*	Revise
Level 7					
NF-2	NF-1	.33*	1.00	.42*	Revise
SS-2	SS-1	.85	.69*	.80*	Revise
SS-3	SS-1	.65*	.96	.67*	Revise
SS-4	SS-2	.50*	1.00	.60*	Revise
SS-4	SS-2,SS-3	.87	.87	.84*	Revise

[1] The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

TABLE IV-5 (Continued)

RATIOS OF THE THREE RELATIONSHIPS FOR EACH HLD IN THE LANGUAGE ARTS/ENGLISH HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 7 (cont.)					
SS-5	SS-4	.81*	1.00	.81*	Revise
SS-6	SS-5	.77*	.53*	.87	Revise
Level 8					
LSS-4	LSS-3	.50*	1.00	.20*	Revise
SP-5	L-4	1.00	1.00	1.00	Accept
SP-6	L-4	1.00	1.00	1.00	Accept
Level 9					
D-5	D-3, D-4	.50*	.66*	.50*	Revise
P-8	SV-12	.88	.66*	.56*	Revise
SV-10	S-11	.83*	.93	.86	Revise
S-11	S-9	1.00	.50*	.50*	Revise
S-11	S-9, S-10	1.00	.51*	.71*	Revise
SV-11	SV-10	.71*	.88	.76*	Revise
SV-12	SV-11	.73*	.94	.60*	Revise
SS-18	P-8	.31*	.83*	.25*	Revise

[1] The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

TABLE IV-6

RATIOS OF THE THREE RALATIONSHIPS FOR EACH HLD IN THE SCIENCE HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 1					
CL-1	OBS-7	.82*	1.00	.96	Revise
ME-1	OBS-5	.80*	.77*	.44*	Revise
CL-2	OBS-7	.82*	.96	.96	Revise
ME-2	OBS-3,OBS-4,OBS-6	1.00	.90	1.00	Accept
OBS-2	OBS-1	.94	.85	.52*	Revise
CL-3	OBS-14	1.00	1.00	1.00	Accept
ME-3	OBS-3,OBS-4,OBS-6	.71*	.71*	.83*	Revise
OBS-3	OBS-2	.98	.64*	.73*	Revise
ME-4	OBS-19	1.00	1.00	1.00	Accept
OBS-4	OBS-2	.82*	.86	.53*	Revise
OBS-5	OBS-2	.92	.82*	.48*	Revise
OBS-6	OBS-2	1.00	.87	.62*	Revise
OBS-8	OBS-2	1.00	.66*	.93	Revise
OBS-9	OBS-8	.53*	1.00	.88	Revise
OBS-11	OBS-8	1.00	.96	1.00	Accept
OBS-12	OBS-8	1.00	.96	1.00	Accept
OBS-13	OBS-8	.93	.96	1.00	Accept
OBS-14	OBS-13	.91	.96	.96	Accept
OBS-15	ME-2	.70*	1.00	1.00	Revise
OBS-16	ME-2	.72*	1.00	1.00	Revise
OBS-17	OBS-2	1.00	1.00	1.00	Accept
OBS-18	OBS-17	1.00	.95	1.00	Accept
OBS-19	OBS-18	1.00	1.00	1.00	Accept

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[1] The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

TABLE IV-6 (Continued)

RATIOS OF THE THREE RALATIONSHIPS FOR EACH HLD IN THE SCIENCE HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 2					
UST-3	UST-2	.97	.76*	.94	Revise
UST-4	UST-3	.73*	1.00	.85	Revise
CL-5	OBS-26	1.00	1.00	1.00	Accept
UST-5	UST-4	.42*	.93	.48	Revise
ME-8	ME-5,ME-6,ME-7	.87	.50*	.38*	Revise
OBS-23	OBS-22	1.00	.26*	.70*	Revise
OBS-24	OBS-23	1.00	.90	1.00	Accept
OBS-25	OBS-24	.91	1.00	.86	Accept
OBS-27	OBS-26	.81*	1.00	1.00	Revise
OBS-28	OBS-26	1.00	1.00	1.00	Accept
OBS-29	OBS-28	1.00	1.00	1.00	Accept
OBS-30	OBS-29	1.00	1.00	1.00	Accept
Level 3					
CO-2	CO-1	.94	.88	.88	Accept
INP-5	UST-7	.80*	.36*	.12*	Revise
UST-9	UST-8	.20*	.16*	.08*	Revise
OBS-32	UST-9	.50*	.25*	.30*	Revise
OBS-33	OBS-32	.50*	.71*	.50*	Revise
OBS-34	OBS-33	.75*	.50*	.18*	Revise
Level 4					
CO-6	CO-5	.52*	.69*	.39*	Revise
INP-7	INP-6	.40*	1.00	1.00	Revise
INP-8	OBS-36	.20*	.16*	.09*	Revise
CL-9	CL-8	.50*	.50*	.15*	Revise

[1] The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

TABLE IV-6 (Continued)

RATIOS OF THE THREE RALATIONSHIPS FOR EACH HLD
IN THE SCIENCE HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 4 (cont.)					
CL-10	CL-9	1.00	.29*	.50*	Revise
CL-12	CL-11	1.00	.21*	.66*	Revise
Level 5					
UST-16	UST-15	1.00	1.00	.92	Accept
UST-17	UST-16	.84*	1.00	1.00	Revise
UST-18	UST-16	1.00	1.00	1.00	Accept
Level 6					
CO-12	CO-11	.63*	.52*	.63*	Revise
CO-13	CO-12	.62*	.65*	.65*	Revise
CO-14	CO-12	.87	.50*	.87	Revise
CO-15	CO-12	.77*	.63*	.63*	Revise
CO-16	CO-12	.80*	.66*	.88	Revise
CO-20	CO-18	1.00	.86	1.00	Accept
Level 7					
IDV-1	CO-3	.84*	.94	.82*	Revise
FHY-1	CO-3	.89	.96	.89	Accept
ITD-1	CO-5	1.00	1.00	1.00	Accept
ITD-1	CO-4,CO-5	.81*	.56*	.72*	Revise
ME-1	CL-1	.63*	1.00	.51*	Revise
CL-2	ME-3	.84*	.64*	.64*	Revise
CO-2	CO-1	.93	.77*	.85	Revise
IDV-2	IDV-1	.58*	.81*	.72*	Revise
ITD-2	ME-3	.66*	.46*	.75*	Revise
ME-2	CO-6	.64*	.56*	.50*	Revise
CL-3	CL-2	.78*	.83*	.78*	Revise

1 The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

TABLE IV-6 (Continued)

RATIOS OF THE THREE RALATIONSHIPS FOR EACH HLD
IN THE SCIENCE HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 7 (cont.)					
IDV-3	IDV-2	.75*	.69*	.90	Revise
CO-3	CO-2	.88	.94	.90	Accept
ME-3	ME-2	.66*	.82*	.66*	Revise
ITD-4	CL-5	1.00	1.00	1.00	Accept
ME-4	CO-8	.75*	.60*	1.00	Revise
CL-4	CL-3	.92	.92	.92	Accept
CO-4	FHY-1	.50*	1.00	1.00	Revise
CO-4	FHY-1, IDV-3	.72*	.65*	.68*	Revise
CL-5	CL-4	1.00	.88	1.00	Accept
CO-5	FHY-1	.44*	.80*	.61*	Revise
CO-5	FHY-1, IDV-3	.86	.61*	.72*	Revise
CL-6	ITD-1	1.00	1.00	1.00	Accept
CL-6	ME-4, ITD-1	1.00	.85	1.00	Accept
CO-6	ME-1	.52*	.83*	.71*	Revise
CO-7	ITD-4	.55*	.83*	1.00	Revise
CO-8	CO-7	.85	.75*	.75*	Revise
Level 8					
IDV-6	ME-8	.48*	.89	.89	Revise
ME-7	CO-31	.85	.85	.94	Accept
ME-8	ME-7, ME-6	.83*	.78*	.81*	Revise
ITD-11	ME-8	.63*	.63*	1.00	Revise
CO-31	CO-30	.68*	.48*	1.00	Revise
Level 9					
EXP-1	FHY-5	.27*	1.00	.60*	Revise
EXP-2	CO-57, CO-58	.82*	.93	.93	Revise

1 The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

TABLE IV-6 (Continued)

RATIOS OF THE THREE RALATIONSHIPS FOR EACH HLD IN THE SCIENCE HIERACHY BY LEVEL

HLD		Ratios			
Objective Number					
Terminal	Subordinate(s)	Adequacy	Consistency	Completeness	Decision[1]
Level 9 (cont.)					
FHY-6	CO-55	1.00	1.00	1.00	Accept
ITD-15	EXP-1	1.00	.42*	1.00	Revise
CO-55	ITD-15	1.00	.77*	1.00	Revise

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[1] The decisions should be used as a guide for curriculum writers.

* Ratio is below the 85% standard.

thirty-three objectives providing the data used for analysis are presented in Table IV-3. These same objectives are the components of the eighty-two HLDs presented in Table IV-5.

The total average time teachers devoted to planning for instruction, preparing materials, and administering two instructional activities and three assessment tasks for each objective is shown in Table G-1 (Appendix G). The amount of time for any one objective ranged from a low of three hours (objective LSS-6, Level 8) to a high of approximately twenty-four hours (objective SP-5, Level 8).

a. The Hypothesis of Learning Dependencies. Eighty-two HLDs are shown for language arts/English in Table IV-5. These are HLDs wherein at least ten students completed the terminal objective and the same students completed the immediate subordinate objective(s). The adequacy, consistency, and completeness ratios are given for each HLD. In each case where either one or more of the ratios are below the .85 standard a decision to revise has been given. Sixty of the HLDs (73%) are in need of revision. Revisions should be made according to the procedures outlined on pages 73 and 74.

The first HLD shown, which has GU-1 as the terminal objective and LT-4 as the subordinate objective, failed in consistency (.66) and in completeness (.50). Research in such revision activity has shown that attempting to correct one relationship per revision is a better strategy than trying to deal with all relationships in need of revision at once. Further, the best results in revision are obtained by attempting to correct the relationship with the lowest ratio first. Therefore, for the first HLD in Table IV-5 that is in need of revision, the completeness ratio becomes the target. The indication here is that the students did not master the subordinate objective nor the terminal objective of the HLD with the necessary frequency to achieve at least an eighty-five percent completeness ratio. Therefore, the curriculum writers should examine the possibility of adding additional objectives which build upon existing skills and thus bridge the gap between the students' present skills and the skills required to master LT-4 (the subordinate objective) and in turn GU-1 (the terminal objective). The same steps and revisions should be made for the second HLD, composed of terminal objective GU-1 and subordinate objectives LT-3 and LT-4, which also failed in the completeness ratio.

The third HLD in need of revision is made up of the terminal objective GU-2 and the subordinate GU-1. Here the value of adequacy is below the .85 standard. According to the established procedure when adequacy is low the terminal objective becomes the target for revision. The first step is to examine the assessment task results (Appendix D) to see if the nonacquisition of the terminal objective is a result of one poor assessment task. A poor assessment task is one that contributes most often to the nonmastery of the objective (students must successfully complete all three assessment tasks to demonstrate mastery of an objective). The assessment task results for objective GU-2 shows that assessment task 1 (A.T. 1) was missed by 10 percent of the students while A.T. 2 and A.T. 3 were mastered. The Puissance value (Appendix E) reveals that the difficulty level of A.T. 1 is 18, while the difficulty level is 3 for A.T. 2 and A.T. 3. The teachers' ratings of the appropriateness of A.T. 1 (on a scale of 0 to 4) was 1.75 while A.T. 2 and A.T. 3 received a 2.5 and a 3.0 rating respectively. This analysis indicates that A.T. 1 is a poor item and should be revised. The remaining 57 HLDs must also be tested. Follow the examples just outlined for the first three HLDs and make revisions accordingly.

b. Student Acquisition of Individual Objectives. The individual language arts/English objectives attempted and mastered during school year 1978-79 are shown in Table IV-3. Those objectives mastered by less than 85% (.85 standard) of the students are marked with an asterisk and should be examined to determine the revisions needed. Some of the objectives will aready have been examined as a result of the HLD test and, thus will not need to be examined again. For example, objective GU-2 (the third one in the table with an asterisk) was just examined as part of the HLD test and thus needs no further examination. All other objectives not meeting the .85 standard and not examined as a component of an HLD should be examined using the steps previously outlined.

2. Discussion of the Science Objectives. The science objectives that were taught to students in a different grade level than that designated for the objectives are found in Table J-2 (Appendix J). For example, the first objective listed in the table (UST-1) is a level two objective and was taught to twenty-three students in the third grade. In all there are twenty-six objectives in Table J-2. In some cases the lower level objectives were given for practice or to sharpen skills prior to entering the hierarchy. In any case the results are not used in this report and no analysis has been attempted.

The data that are used for analysis in this report were derived from those objectives that were taught on grade level, taught in instructional sequence, correctly identified on data forms submitted by teachers, and submitted complete with student identification numbers. The one hundred fifty-seven objectives providing the data that were analyzed are presented in Table IV-4. These same objectives are components of the ninety-two HLDs presented in Table IV-6.

The total average time teachers devoted to planning for instruction, preparing materials, and administering the two instructional activities and three assessment tasks of each objective is shown in Table G-2 (Appendix G). The amount of time for any one objective ranged from a low of two hours (objective ME-17, Level 4) to a high of thirteen and one half hours (objective OBS-29, Level 2).

a. The Hypothesis of Learning Dependencies. Ninety-three HLDs are shown for science in Table IV-6. These are HLDs wherein at least ten students completed the terminal objective and the same students completed the immediate subordinate objective(s). The adequacy, consistency, and completeness ratios are given for each HLD. In each case where either one or more of the ratios are below the .85 standard a decision to revise has been given. Sixty-three of the HLDs (68%) are in need of revision. Revisions should be made according to the procedures outlined pages 73 and 74.

The first HLD shown, which has CL-1 as the terminal objective and OBS-7 as the subordinate, failed in adequacy (.82). A low adequacy occurs when the student is able to exhibit all of the immediate subordinate objectives, but cannot master the terminal objective (defined by acquisition of all three assessment tasks). We must attempt to identify the most likely cause or causes for the need to revise. The first step is always to examine the assessment task results (Appendix D) to see if the nonacquisition of the terminal objective is a result of one poor assessment task. A poor assessment task is one that contributes most often to the nonmastery of the objective. The assessment task results for objective CL-1 reveals that assessment task 1 (A.T. 1) was missed by 8% of the students while they mastered A.T. 2 and 3. Assessment task 3 was also missed by an identical 8% of the students while they mastered A.T. 1 and 2. Two poor assessment tasks for the same objective (i.e., A.T. 1 and 3) are unlikely. Therefore, assessment task error does not appear to be a reasonable explanation for the low adequacy ratio. The second step is to (1) check the performance agreement of all of the components of the instructional triad, (2) review the teacher ratings (Appendix F), (3) check the power level and the reading complexity (Appendix E), (4) examine the stated requirements for materials or equipment for instruction, and (5) check the possibility that there is too great a jump between the subordinate objective and the terminal objective of the HLD.

Each HLD in Table IV-6 should be analyzed similarly using the procedures previously outlined for low adequacy, consistency, or completeness. If more than one ratio is low, as is the case in the second HLD (ME-1 and OBS-5) where all three are low, the best results in revision are obtained by attempting to correct the relationship with the lowest ratio first. Research in such revision activity has shown that attempting to correct one relationship per revision is a better strategy than trying to deal with all relationships at once.

b. Student Acquisition of Individual Objectives. The individual science objectives attempted and mastered during school year 1978-79 are shown in Table IV-4. Those objectives mastered by less than 85% (.85 standard) of the students are marked with an asterisk and should be examined to determine the revisions needed. Some of the objectives will already have been examined as a result of the HLD test. These objectives need not be examined again (i.e., objective CL-1). All other objectives not meeting the .85 standard and not examined as a component of an HLD should be examined using the steps outlined previously. For example, the first objective in the table not meeting the .85 standard is objective OBS-1.

The first step in examining objective OBS-1 is to check the assessment task results to see if one poor item may be contributing to nonacquisition. A look at Table D-2 (Appendix D) reveals that 13% of the students did not master A.T. 3 while mastering the other two assessment tasks. The teachers' ratings Table F-2 (Appendix F) do not show a low rating for A.T. 3. Table E-34 (Appendix E) indicates that the difficulty level of A.T. 3 is not given. A critique of the curriculum materials reveals that A.T. 3 is not specified, therefore teachers had to improvise or construct their own item. It appears that the further development of a third assessment task for objective OBS-1 is warranted. It might also be noted in Table D-2 that 23% of the students failed to master all three assessment tasks, thus, it would be advisable to analyze all components of the triad.

CHAPTER V. IMPLICATIONS AND CONCLUSIONS

The validation of the District of Columbia Public Schools Competency-Based Curriculum (language arts/English and science) was continued for a second year during 1978-79. There were 425 objectives to be validated in the language arts/English curriculum, and 315 objectives to be validated in science. Of these, thirty-eight percent of the former and fifty-three of the latter were reported on for validation purposes. Even though validation began in the classroom the first of October 1978 and continued through the end of May 1979 (a span of eight months) there were only 128 days available for validation. The reason for the limitation of 128 days was the requirement of the exclusion of days for city-wide testing (fall and spring, criterion and standardized), holidays, snow days, staff development, and the teachers' strike.

The language arts/English objectives were validated in 11 of the 13 pilot elementary schools by 41 elementary school classroom teachers reporting on 994 students. Twenty secondary school classroom teachers in the 9 pilot junior high schools reported on 536 students.

The science objectives were validated in 10 of the 13 pilot elementary schools by 36 elementary school classroom teachers reporting on 845 students. Nine secondary school classroom teachers in 6 of the 9 pilot junior high schools reported on 228 students.

In all there were 106 classroom teachers in 22 Pilot Schools who submitted validation data on 2,603 students in grades kindergarten through nine. Classroom observation data indicated that language arts/English and science CBC materials were being used and that the CBC approach was followed by the teachers validating in the Pilot Schools.

As reported in Chapter IV, the adequacy, consistency, and completeness ratios and the percentage of acquisition of each objective were used as the basis for determining which objectives were in need of revision. A substantial number of revisions were needed in both curricula. Identifications of these objectives were made and procedures for determining the type of revisions needed were specified. In addition an example for analysis was given for both a single instructional triad and for an Hypothesis of Learning Dependency in need of revision.

Although revisions are necessary, and are to be expected in an extensive validation process, it is evident from the validation study that the language arts/English and science curricula, kindergarten through grade nine:

- Are sound both in content and structure;
- Provide a useful instructional fromework for teachers;
- Provide students with a clear understanding of the behaviors they are expected to acquire;
- Generally appeal to both students and teachers; and
- Have the potential to make a substantial impact on the overall improvement of education in the District of Columbia Public Schools.

Additionally:

- The validation model developed in 1977-78 and tested over a two year period is workable, effective, applicable and worthy of replication.

APPENDIX A

TABLE A-1
PUISSANCE INDEX (Power Structure Test)
(CBC CURRICULUM VALIDATION)

Subject Area ____ Date __________
Grade Level ____ Page Number ____

Directions: Look at each row and column heading on the chart below. Indicate the cell where the Behavioral Objective, each Instructional Activity, and each Assessment Task fall by placing "B.O.," "A.T." or "I.A." in the proper cell(s).

Column Definitions:

Chain - A rote or memory, verbal or nonverbal response, i.e., counting from one to ten, tying a shoelace, etc.

Multiple Discrimination - Teacher supplies a label or name of a class of items, i.e., teacher places a set of different colored circles on the board and requires the student to pick out the blue circle.

Concept - Student supplies the label or single attribute for a set of objects supplied by the teacher, i.e., all are soft, etc.

Multiple Attributes - Student supplies more than one label or several attributes for a set of objects.

Principle - Student makes use of a rule or formula.

Problem Solving - Student is presented with a situation which is entirely new and the answer is unknown. Student must apply his/her own rule. Teacher does not tell how it is to be solved.

Row Definition:

The row headings indicate the action required on the part of the student in responding.

(Place "B.O.," "I.A." and "A.T." in appropriate cell(s))

ACTION VERBS	Chain 1 Verbal or Nonverbal	Multiple 2 Discrimination	3 Concept	4 Multiple Attributes	5 Principle	6 Problem Solving
Name 1 Identify State a Rule						
Order 2 Distinguish						
Construct 3 Describe Demonstrate Apply a Rule						

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TABLE A-2
FOG TEST (Reading Complexity Level)
(CBC CURRICULUM VALIDATION)

Subject Area ______________________________ Date __________
Grade Level ______________________________ Page Number ____

This measure is an adaptation of a procedure called the FOG. The procedure is adapted to assessment tasks only.
Directions: Find the reading complexity level of each assessment task by following the six steps outlined below:

1. Count the number of words in each sentence. Include sentences in the directions as well as in the test items.
    - a. For multiple choice assessment tasks, count all sentences in the stem and count the words in the longest choice.
    - b. For matching column assessment tasks, count all sentences in the directions. Count the number of words in the longest premise and the number of words in the longest response. Count the premise and response together as one sentence.
2. Determine the arithmetic average of the sentence length for all sentences counted.
3. Count the number of three or more syllable words in all sentences. Do not include words that become three syllables with a suffix such as following or sentences. Do not include capitalized words. Do not include compound words such as household or grandmother.
4. Add the total number of three or more syllable words to the average sentence length.
5. Multiply this sum by 0.4.
6. Round off this product to the nearest whole number. This whole number is the reading level expressed as a grade level.

1 Assessment Task	2 Total Number Words	3 Col. 2 Divided by Number of Sentences	4 Number Multi-Syllable Words	5 Total Col. 3 + Col.4	6 Reading Level (sum Col. 5 x 0.4)
#1					
#2					
#3					

TABLE A-3

Teacher Name________________________Room No. ________School__________

Subject Area________________________Grade________Date____________

Directions: This form is to be completed during the month of October 1977 and returned to the Division of Research and Evaluation.

A. Indicate the extent of your CBC training PRIOR to October 1, 1977, by completing the following:

Type of CBC Training	Number of Sessions	Total Amount of Time in Hours	Place(s) Where Held
1. Characteristics of CBC	_____	_____	__________
2. Operational Definition of CBC	_____	_____	__________
3. Definition of Action Words	_____	_____	__________
4. Constructing Behavioral Objectives	_____	_____	__________
5. Identifying Performance Agreement	_____	_____	__________
6. Constructing Learning (Instructional) Activities	_____	_____	__________
7. Constructing Assessment Tasks	_____	_____	__________
8. Determining Entry Levels (Diagnosis)	_____	_____	__________
9. Interpreting Hierarchies	_____	_____	__________
10. Student Recordkeeping	_____	_____	__________
Other (Specify)			
11. __________	_____	_____	__________
12. __________	_____	_____	__________
13. __________	_____	_____	__________
14. __________	_____	_____	__________

TABLE A-3 Continued

B. Complete the following:

1. How many years of experience have you had teaching in this subject area? ____________. At this grade level? ______

2. Did you participate in writing CBC Curriculum which is being validated? Yes _____ No _____

C. If you feel you need additional CBC training please describe the area and kind of training below.

1.

2.

3.

4.

5.

TABLE A-4

CBC CURRICULUM VALIDATION OBSERVATION FORM
THE PRESENTATION OF LANGUAGE ARTS/ENGLISH
AND SCIENCE CBC MATERIALS

Pilot School______________________________

Classroom Teacher________________ Subject Area__________

Grade Level__________

Date of Observation________________ Observation No.__________

Observer________________ Position__________

Objective Being Taught: Number ______ Page __________

This observation form is intended to verify the extent to which CBC is being utilized in the instructional program and NOT as an evaluation of the teacher or the classroom.

Directions for Observer

There will be one observation of each teacher during each of the following time periods:

October 30 - November 30, 1978
January 2 - January 31, 1979
February 26 - March 23, 1979
April 16 - May 15, 1979

For each observation, spend one instructional period in each classroom where Language Arts/English and Science CBC Curriculum Materials are being validated. Complete a separate form for each observation and for each observed objective.

Please check the appropriate response:

	Observed	Not Observed OR	Not Applicable For This Observation[1]
1. There is evidence of pretesting for entry level such as groupings, diagnostic records, and/or teacher/student interaction	____	____	____
2. There is evidence that pretest results have been used to establish different instructional levels	____	____	____
3. The students are informed of the behavioral objective at the beginning of the lesson	____	____	____
4. The students are engaged in an instructional activity called for in the instructional triad (system)	____	____	____
5. There is evidence of the two instructional activities being taught	____	____	____
6. The students are engaged in an assessment task called for in the instructional triad (system)	____	____	____
7. There is evidence of the three assessment tasks being administered	____	____	____
8. Students are measured on the criterion for performance stated in the assessment task	____	____	____

____
Observer's Signature

---

[1] If a teacher has the students engaged in an instructional activity you may not be able to observe evidence of the assessment tasks being administered. In such cases check "Not Applicable."

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TABLE A-5

CBC CURRICULUM VALIDATION
FOR LANGUAGE ARTS/ENGLISH AND SCIENCE
SCHOOL YEAR 1978-79

Teacher Feedback Form

Teacher Name ______________________ Check One: ___ Language Arts/English
___ Science

Social Security No. ______________ Grade ___ School ______________

Behavioral Objective Taught: Number ___ Page ___ Skill Area ______________

DIRECTIONS: Use this form to provide feedback on each instructional triad.

KEY: B.O. = Behavioral Objective
I.A. = Instructional Activity
A.T. = Assessment Task
Min. = Minutes

A. Approximately how much time did you devote to the activities and tasks? Check one column for each activity and task.

Area	10-20 Min.	30-40 Min.	50-60 Min.	2-3 Hours	4-5 Hours	6-7 Hours	8-9 Hours	10 or More Hours
1. Planning for instruction								
I.A. #1								
I.A. #2								
A.T. #1								
A.T. #2								
A.T. #3								
2. Preparing materials								
I.A. #1								
I.A. #2								
A.T. #1								
A.T. #2								
A.T. #3								
3. Administering								
I.A. #1								
I.A. #2								
A.T. #1								
A.T. #2								
A.T. #3								

OVER→

TABLE A-5 Continued

B. On a scale of "0" to "4" check the column that most nearly reflects your opinion relative to the components of this instructional triad.

	Not At All 0	1	2	3	Extremely 4
1. Appropriateness to success of instruction					
B.O.	___	___	___	___	___
I.A. #1	___	___	___	___	___
I.A. #2	___	___	___	___	___
A.T. #1	___	___	___	___	___
A.T. #2	___	___	___	___	___
A.T. #3	___	___	___	___	___
2. Clarity for students					
B.O.	___	___	___	___	___
I.A. #1	___	___	___	___	___
I.A. #2	___	___	___	___	___
A.T. #1	___	___	___	___	___
A.T. #2	___	___	___	___	___
A.T. #3	___	___	___	___	___
3. Effectiveness of the Instructional triad	___	___	___	___	___

C. On a scale of "0" to "4" check the column that most nearly reflects the effects of the Instructional Triad on each of the following aspects.

1. Students' interest and enthusiasm	Low ___ 0	___ 1	___ 2	___ 3	High ___ 4
2. Students' attention span during instruction	Short ___ 0	___ 1	___ 2	___ 3	Long ___ 4
3. Students' attitudes toward instruction	Less Favorable ___ 0	___ 1	___ 2	___ 3	More Favorable ___ 4
4. Teachers' attitude toward instruction	Less Favorable ___ 0	___ 1	___ 2	___ 3	More Favorable ___ 4
5. Carry over to other subject areas	None ___ 0	___ 1	___ 2	___ 3	Marked ___ 4

TABLE A-5 Continued

Teacher Name ______________________________ SSN ________ School ____________________

Behavioral Objective Taught: Number ____ Page ____ Skill Area ____________________

D. Instructional triads are meant to be self-contained. If you did use additional materials and/or activities:

1. Please explain why -

2. Please explain what you used -

E. This school year, have you taught the skills represented by this objective prior to teaching this triad to these students?

Yes ____ No ____

F. If there are some alternate instructional activities or assessment tasks that you would suggest for this objective, please describe them below:

G. List any additional comments about the instructional triad that you have not reported in previous sections of this feedback form. (If you need more space, please use the back of this page.)

NOTE: This page of the Teacher Feedback Form was given directly to the curriculum writers.

TABLE A-6

CBC CURRICULUM VALIDATION FOR LANGUAGE ARTS/ENGLISH AND SCIENCE

SCHOOL YEAR 1978-79

STUDENT'S PARTICIPATION RECORD

Teacher Name ______________________ Check One: ___ Language Arts/Engli
___ Science

Social Security No.______________ Grade_____ School ______________

Behavioral Objective Taught: Number ___ Page ___ Skill Area ______________

Instruction Period[1]: From ______________ (Month) (Day) To ______________ (Month) (Day)

Directions: Use this form for recording participation for those students in your class who have met the established entry level determined for your grade. Complete a form for each instructional triad. Complete all the information called for.

Key:

I.A. = Instructional Activity
A.T. = Assessment Task

Student's Name			Student ID	CHECK The Activity Completed		CHECK The Assessment Task SUCCESSFULLY Completed by the Student		
Last	First	Init.	Number	I.A. 1	I.A. 2	A.T. 1	A.T. 2	A.T. 3

---

[1] Instruction Period - From the time the Behavioral Objective is introduced to the students until such time as at least 75% of the students complete the last Assessment Task.

OVER ->

TABLE A-6 Continued

Teacher Name ______________________________ School ______________

Student's Name			Student ID Number	CHECK The Activity Completed		CHECK The Assessment Task SUCCESSFULLY Completed by the Student		
Last	First	Init.		I.A. 1	I.A. 2	A.T. 1	A.T. 2	A.T. 3

COMMENTS: (Attach separate sheet if more space is needed for comments.)

APPENDIX B

TABLE B-1
1978-1979 PROPOSED SAMPLING MATRIX
FOR LANGUAGE ARTS/ENGLISH AND SCIENCE LEVELS K-6

Elementary Schools	Number of Teachers by Subject Area and Grade Level								
	(Subject)	PK-K	1	2	3	4	5	6	(Total)
Adams	(L.A.)	1	1	2	1	1	1	1	(8)
	(Sci.)	1	1	1	1	1	1	1	(7)
*Bunker Hill	(L.A.)					1	1		(2)
	(Sci.)								
Burrville	(L.A.)		1			1		2	(4)
	(Sci.)								
Drew	(L.A.)	1	1	1	1½	½			(5)
	(Sci.)		1	1		1	½	1½	(5)
**Gibbs	(L.A.)								
	(Sci.)		1		½	½			(2)
Kimball	(L.A.)		1	1	1	2			(5)
	(Sci.)		1	1	1	1	1		(5)
McGogney	(L.A.)		1	1	1	1		1	(5)
	(Sci.)		1	1	1	1	1	1	(6)
Shaed	(L.A.)		2	1		2	1	1	(7)
	(Sci.)		1	1	2			1	(5)
Thomson	(L.A.)		1		1½	1½		1	(5)
	(Sci.)		1	1	1	1	1		(5)
Tubman	(L.A.)		1				1	1	(3)
	(Sci.)		1			1			(2)
Washington Highland	(L.A.)		1		2			1	(4)
	(Sci.)		1	1	1	2	2	2	(9)
Webb	(L.A.)		1	1	1	½	½	1	(5)
	(Sci.)		1	1	1	1		1	(5)
Wilson, J.O.	(L.A.)								
	(Sci.)	1	1	1	1	1	1	—	(6)
Sub-totals									
	(L.A.)	2	11	7	9	10½	4½	9	(53)
	(Sci.)	2	11	9	9½	10½	7½	7½	(57)
Total		4	22	16	18½	21	12	16½	110

* New to validation effort.
** First time validating language arts/English and science.
½ = ½ combination class being taught by a teacher, i.e., grade 3/4.

NOTE: Each of the 13 elementary schools participated in the 1978-1979 validation. Only 79 of the 110 teachers (72%) participated.

TABLE B-2
1978-1979 PROPOSED SAMPLE
FOR LANGUAGE ARTS/ENGLISH AND SCIENCE LEVELS 7-9

Junior High Schools	Number of Teachers by Subject Area and Grade Level				
	(Subject)	7	8	9	(Total)
Backus	(Eng.)	1	2	1	(4)
	(Sci.)				
Deal	(Eng.)		1		(1)
	(Sci.)	1	1	1	(3)
Eliot	(Eng.)	1	1	1	(3)
	(Sci.)	1			(1)
Francis	(Eng.)		2	2	(4)
	(Sci.)	1	1	1	(3)
Friendship	(Eng.)	3	3	1	(7)
	(Sci.)	5			(5)
Garnet-Patterson	(Eng.)		1	1	(2)
	(Sci.)	1			(1)
Langley	(Eng.)		1	4	(5)
	(Sci.)	3		1	(4)
*Rabaut	(Eng.)	1	1	1	(3)
	(Sci.)				
Sousa	(Eng.)	2	1	1	(4)
	(Sci.)	1	1		(2)
Sub-totals					
	(Eng.)	8	13	12	(33)
	(Sci.)	13	3	3	(19)
Total		21	16	15	52

* New to validation effort.

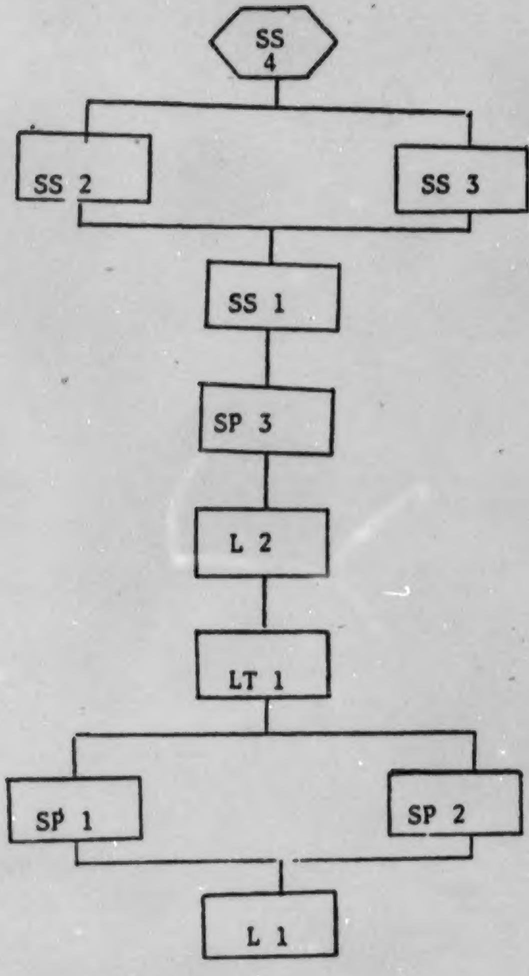
NOTE: Each of the 9 junior high schools participated in the 1978-1979 validation. Only 31 of the 52 teachers (60%) participated.

APPENDIX C

Abbreviations for Objectives in Tables C-1 through C-10

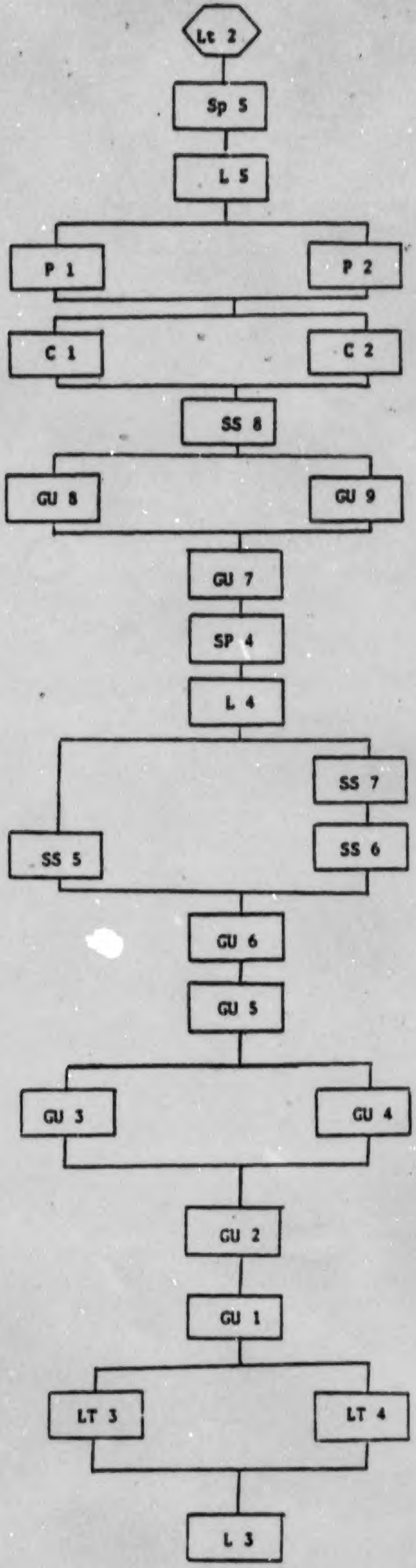
C = Capitalization
CW = Creative Writing
D = Drama
GU = Grammar Usage
L = Listening
LT = Literature
LSS = Short Story
LT-P = Poetry
M = Myths/Legends
MM = Mass Media
N = Novels
NF = Nonfiction
P = Punctuation
PA = Paragraphs
POS = Parts of Speech
PRO = Pronoun Usage
S = Spelling
SP = Speaking
SS = Sentence Structure
ST = Study Skills
SV = Subject and Verb
TC = Themes and Compositions
VU = Verb Usage

TABLE C-1
LANGUAGE ARTS/ENGLISH
INTEGRATED HIERARCHY
LEVEL PRE-K, KGN


SS 4
SS 2
SS 3
SS 1
SP 3
L 2
LT 1
SP 1
SP 2
L 1

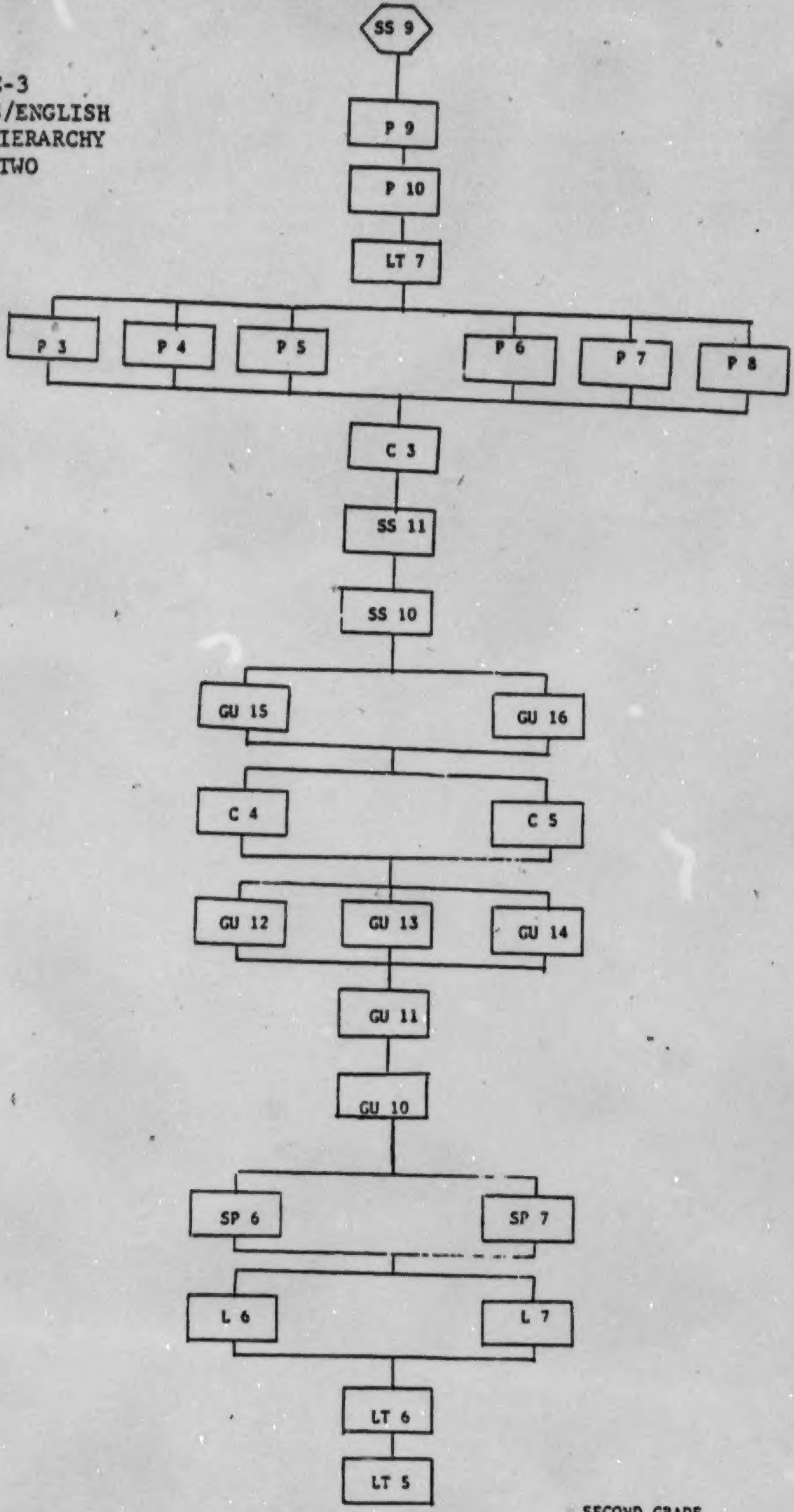
PK-K
LANGUAGE ARTS

TABLE C-2
LANGUAGE ARTS/ENGLISH
INTEGRATED HIERARCHY
LEVEL ONE


Lt 2
Sp 5
L 5
P 1
P 2
C 1
C 2
SS 8
GU 8
GU 9
GU 7
SP 4
L 4
SS 7
SS 5
SS 6
GU 6
GU 5
GU 3
GU 4
GU 2
GU 1
LT 3
LT 4
L 3

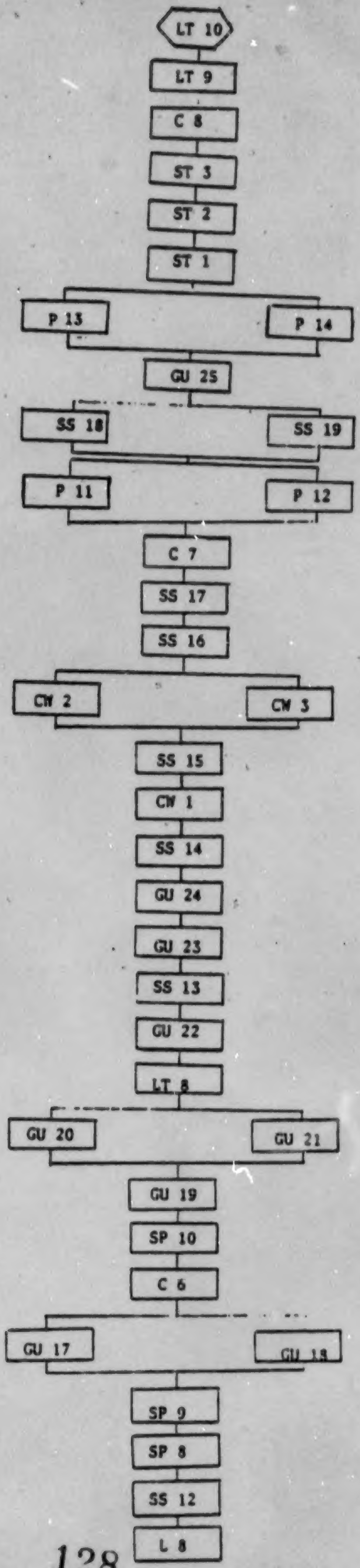
FIRST GRADE
LANGUAGE ARTS

TABLE C-3
LANGUAGE ARTS/ENGLISH
INTEGRATED HIERARCHY
LEVEL TWO


SS 9
P 9
P 10
LT 7
P 3
P 4
P 5
P 6
P 7
P 8
C 3
SS 11
SS 10
GU 15
GU 16
C 4
C 5
GU 12
GU 13
GU 14
GU 11
GU 10
SP 6
SP 7
L 6
L 7
LT 6
LT 5

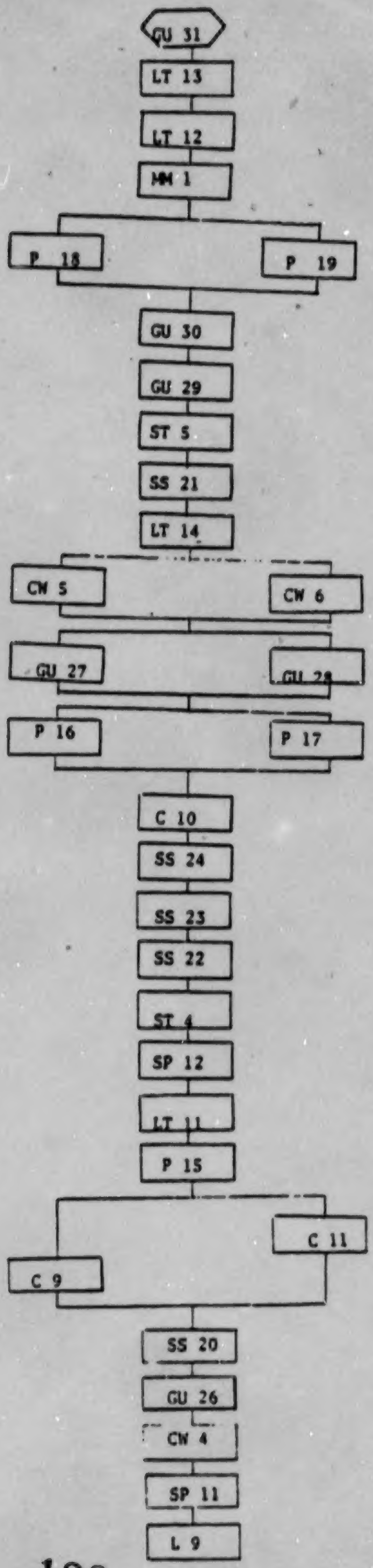
SECOND GRADE
LANGUAGE ARTS

TABLE C-4
LANGUAGE ARTS/ENGLISH
INTEGRATED HIERARCHY
LEVEL THREE


LT 10
LT 9
C 8
ST 3
ST 2
ST 1
P 13
P 14
GU 25
SS 18
SS 19
P 11
P 12
C 7
SS 17
SS 16
CW 2
CW 3
SS 15
CW 1
SS 14
GU 24
GU 23
SS 13
GU 22
LT 8
GU 20
GU 21
GU 19
SP 10
C 6
GU 17
GU 18
SP 9
SP 8
SS 12
L 8

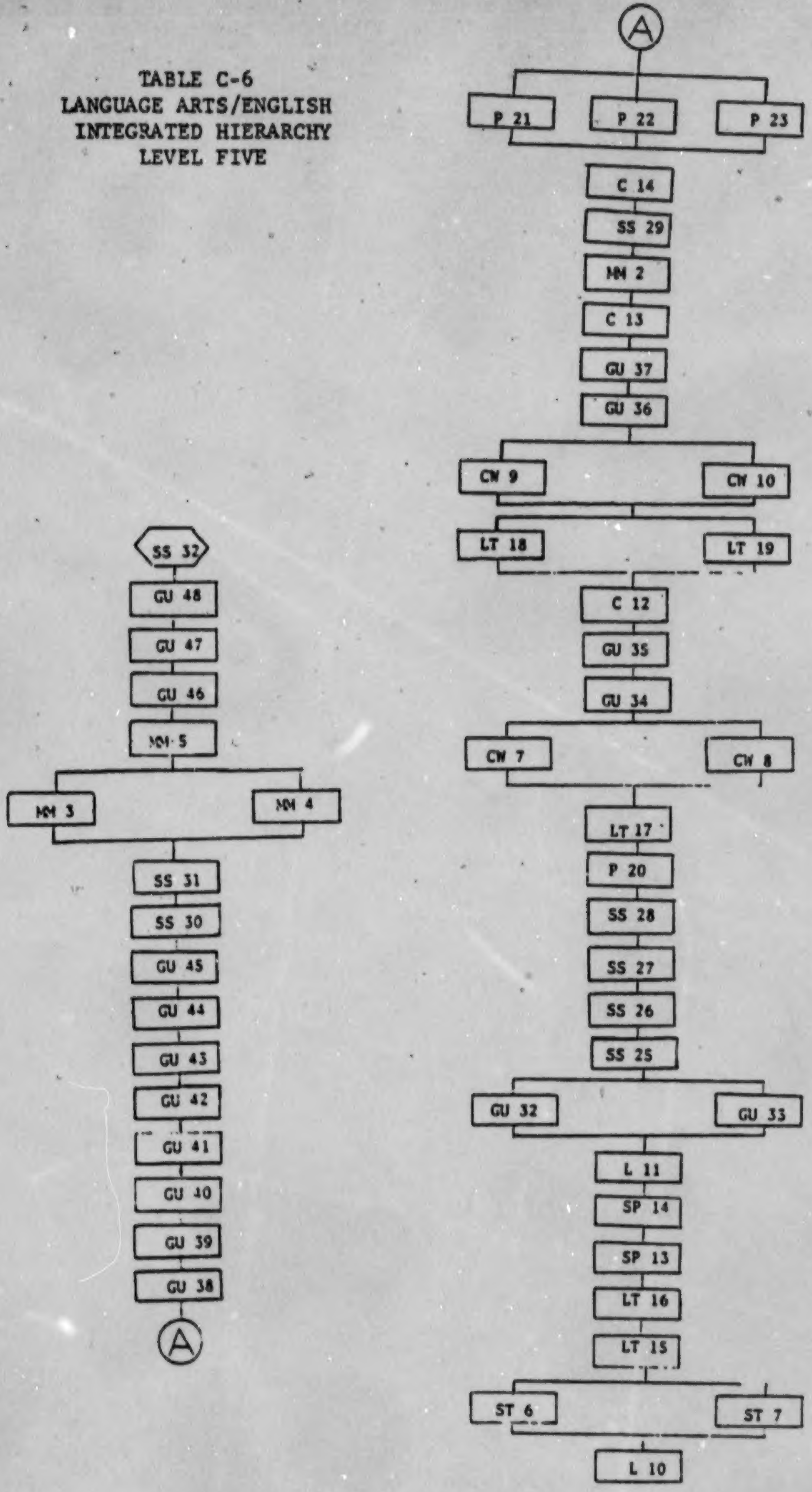
THIRD GRADE
LANGUAGE ARTS

TABLE C-5
LANGUAGE ARTS/ENGLISH INTEGRATED HIERARCHY
LEVEL FOUR


GU 31
LT 13
LT 12
MM 1
P 18
P 19
GU 30
GU 29
ST 5
SS 21
LT 14
CW 5
CW 6
GU 27
GU 28
P 16
P 17
C 10
SS 24
SS 23
SS 22
ST 4
SP 12
LT 11
P 15
C 11
C 9
SS 20
GU 26
CW 4
SP 11
L 9

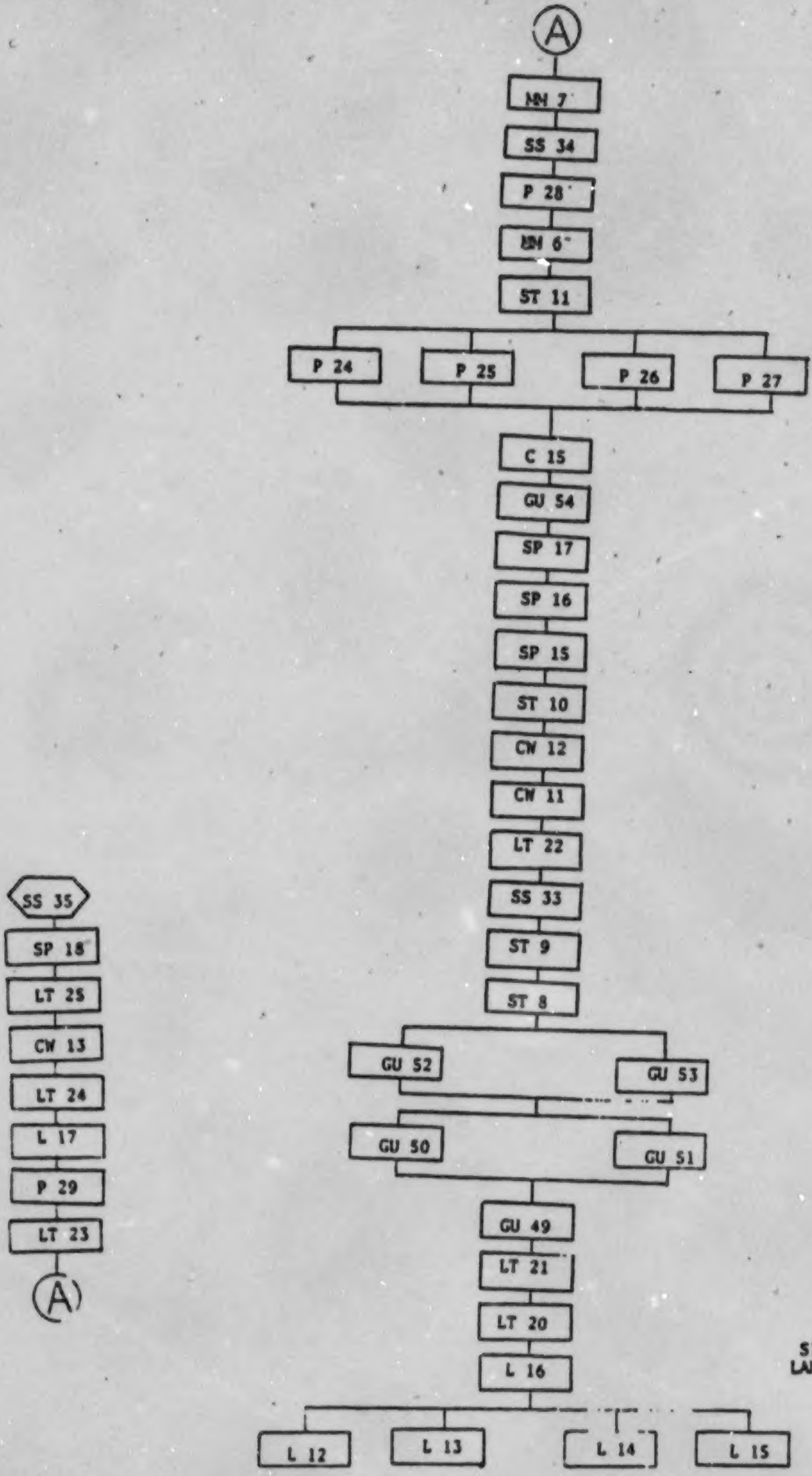
FOURTH GRADE
LANGUAGE ARTS

TABLE C-6
LANGUAGE ARTS/ENGLISH
INTEGRATED HIERARCHY
LEVEL FIVE


SS 32
GU 48
GU 47
GU 46
MM 5
MM 3
MM 4
SS 31
SS 30
GU 45
GU 44
GU 43
GU 42
GU 41
GU 40
GU 39
GU 38
A
A
P 21
P 22
P 23
C 14
SS 29
MM 2
C 13
GU 37
GU 36
CW 9
CW 10
LT 18
LT 19
C 12
GU 35
GU 34
CW 7
CW 8
LT 17
P 20
SS 28
SS 27
SS 26
SS 25
GU 32
GU 33
L 11
SP 14
SP 13
LT 16
LT 15
ST 6
ST 7
L 10

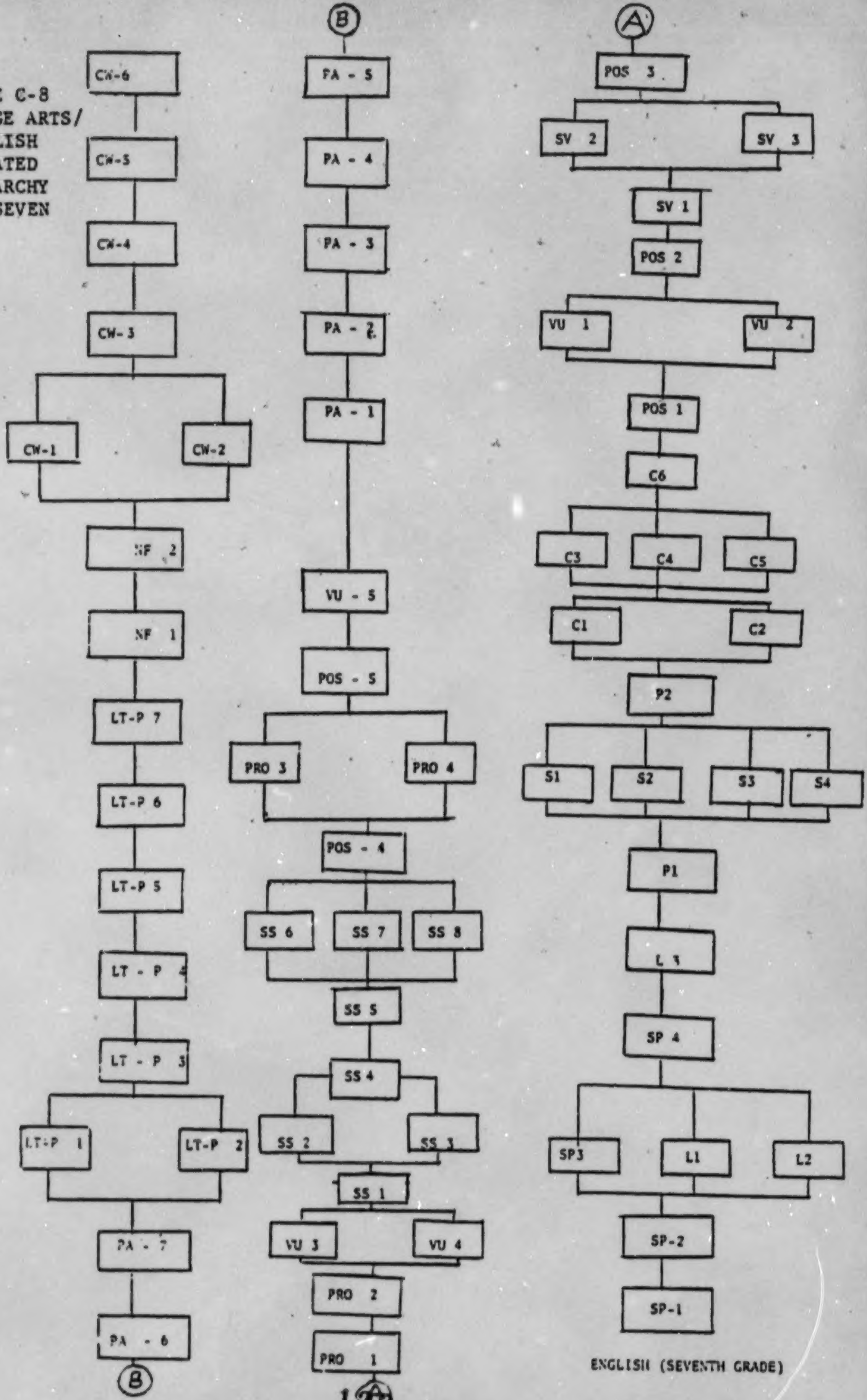
FIFTH GRADE
LANGUADE ARTS

TABLE C-7
LANGUAGE ARTS/ENGLISH
INTEGRATED HIERARCHY
LEVEL SIX


A
MM 7
SS 34
P 28
MM 6
ST 11
P 24
P 25
P 26
P 27
C 15
GU 54
SP 17
SP 16
SP 15
ST 10
CW 12
CW 11
LT 22
SS 33
ST 9
ST 8
GU 52
GU 53
GU 50
GU 51
GU 49
LT 21
LT 20
L 16
L 12
L 13
L 14
L 15
SS 35
SP 18
LT 25
CW 13
LT 24
L 17
P 29
LT 23
A

SIXTH GRADE
LANGUAGE ARTS

TABLE C-8
LANGUAGE ARTS/
ENGLISH
INTEGRATED
HIERARCHY
LEVEL SEVEN


CW-6
CW-5
CW-4
CW-3
CW-1
CW-2
NF 2
NF 1
LT-P 7
LT-P 6
LT-P 5
LT - P 4
LT - P 3
LT-P 1
LT-P 2
PA - 7
PA - 6
B
B
PA - 5
PA - 4
PA - 3
PA - 2
PA - 1
VU - 5
POS - 5
PRO 3
PRO 4
POS - 4
SS 6
SS 7
SS 8
SS 5
SS 4
SS 2
SS 3
SS 1
VU 3
VU 4
PRO 2
PRO 1
A
A
POS 3
SV 2
SV 3
SV 1
POS 2
VU 1
VU 2
POS 1
C6
C3
C4
C5
C1
C2
P2
S1
S2
S3
S4
P1
L 3
SP 4
SP3
L1
L2
SP-2
SP-1

ENGLISH (SEVENTH GRADE)

127

TABLE C-9
LANGUAGE ARTS/
ENGLISH
INTEGRATED
HIERARCHY
LEVEL EIGHT

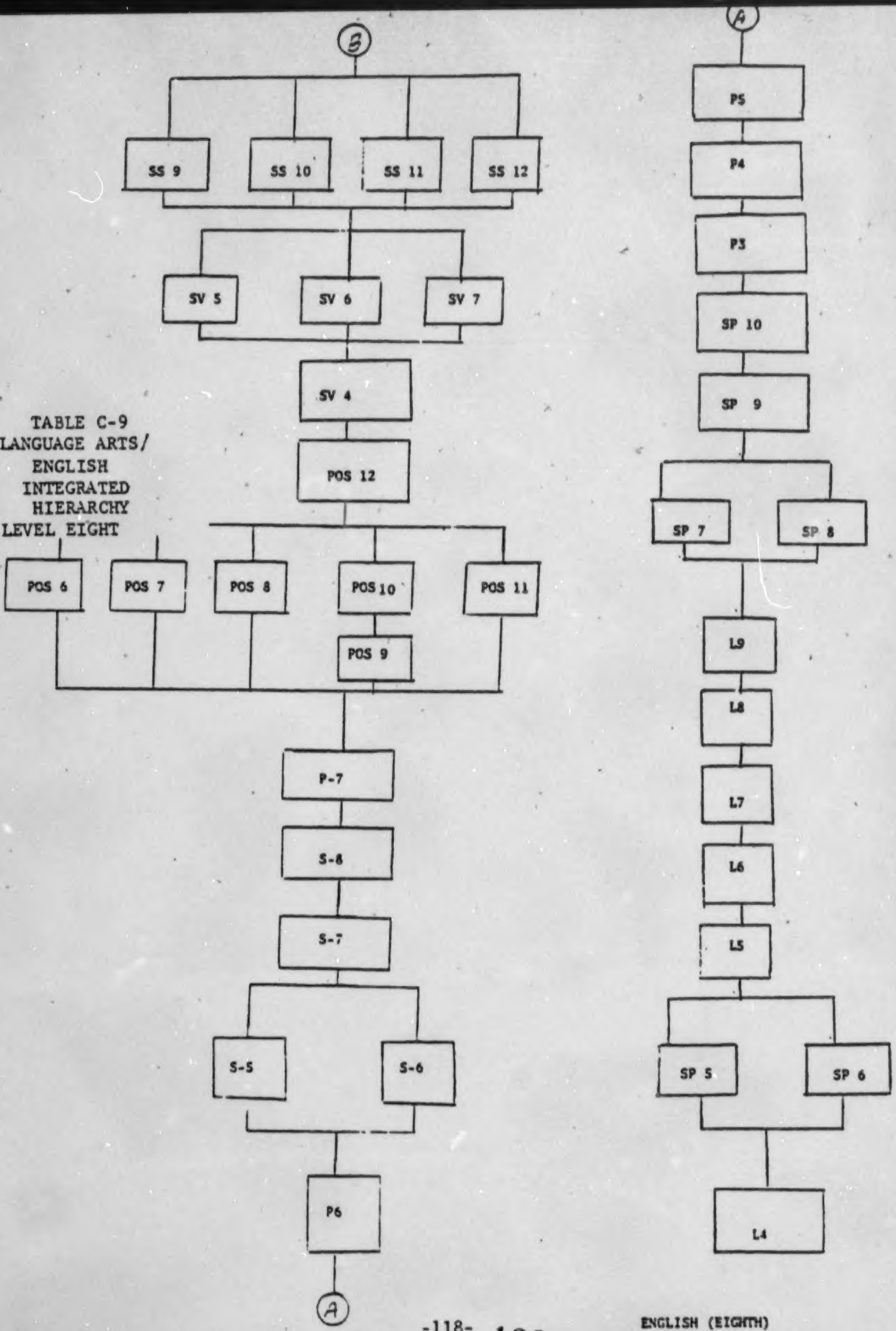

B
SS 9
SS 10
SS 11
SS 12
SV 5
SV 6
SV 7
SV 4
POS 12
POS 6
POS 7
POS 8
POS 10
POS 11
POS 9
P-7
S-8
S-7
S-5
S-6
P6
A
A
P5
P4
P3
SP 10
SP 9
SP 7
SP 8
L9
L8
L7
L6
L5
SP 5
SP 6
L4

TABLE C-9
LEVEL
EIGHT
Continued

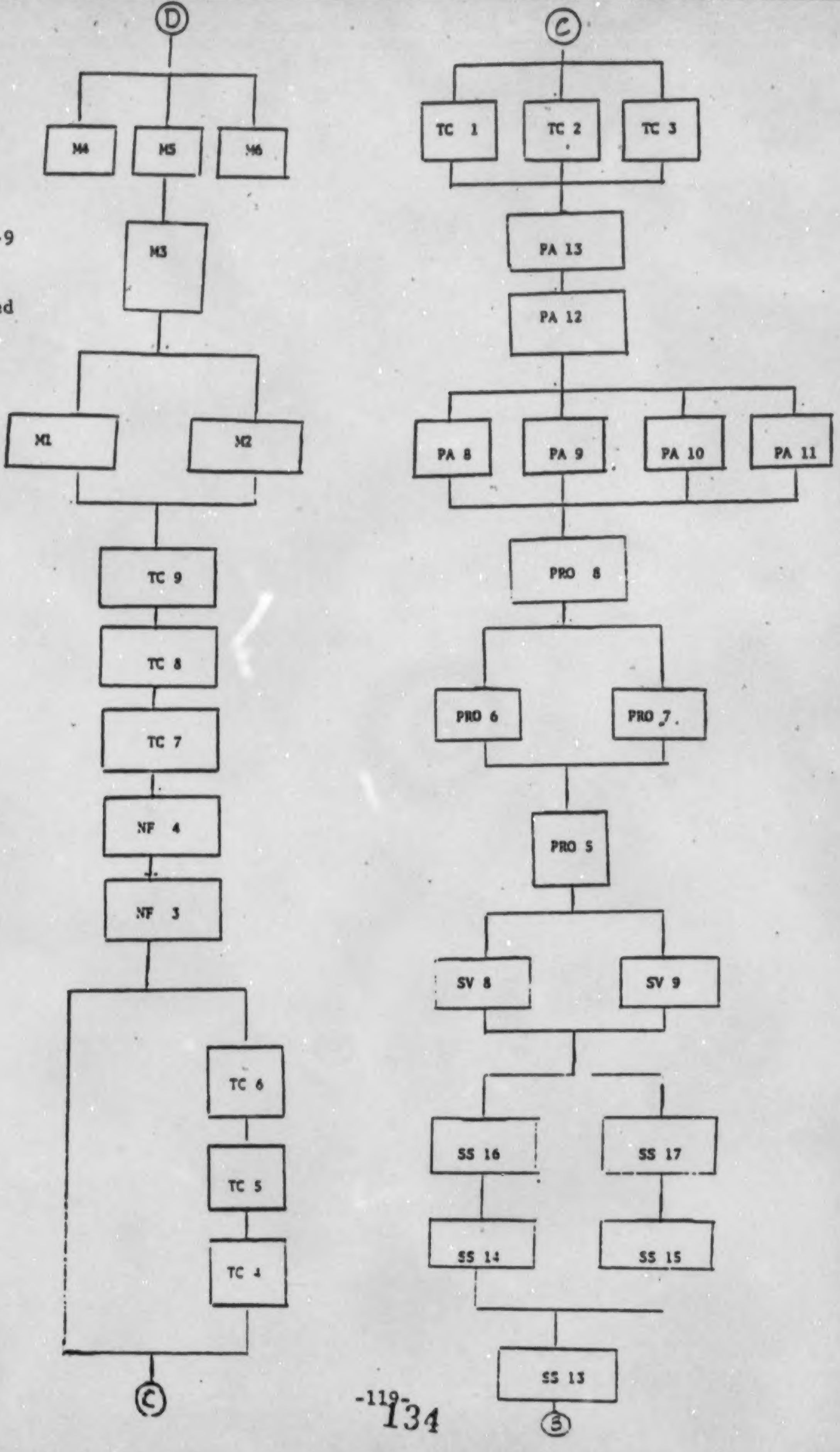
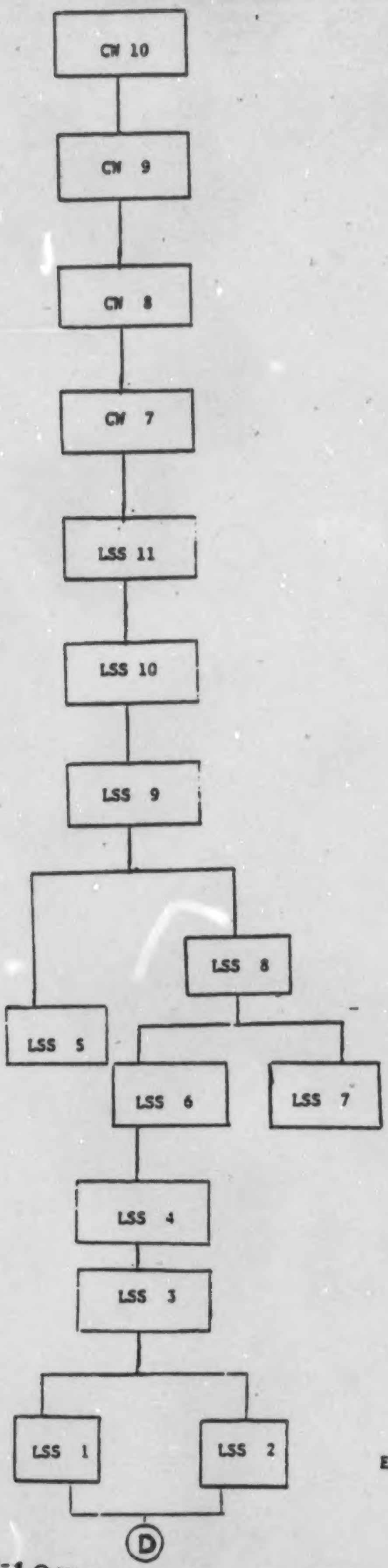
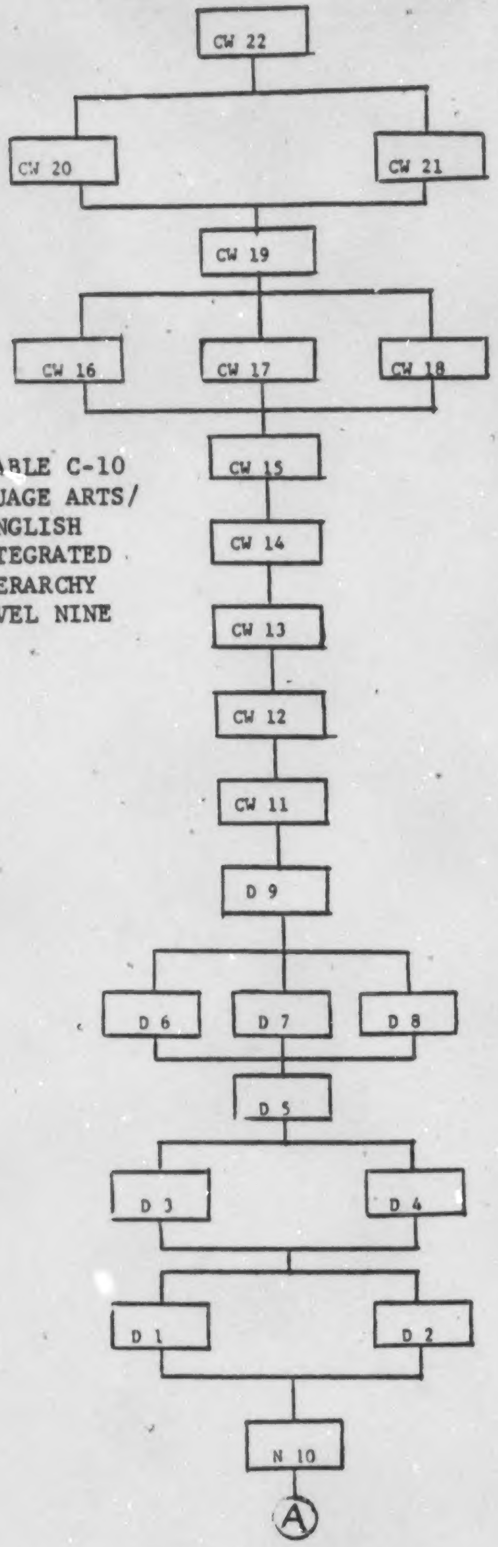

D
M4
M5
M6
M3
M1
M2
TC 9
TC 8
TC 7
NF 4
NF 3
TC 6
TC 5
TC 4
C
C
TC 1
TC 2
TC 3
PA 13
PA 12
PA 8
PA 9
PA 10
PA 11
PRO 8
PRO 6
PRO 7
PRO 5
SV 8
SV 9
SS 16
SS 17
SS 14
SS 15
SS 13
B

TABLE C-9
LEVEL EIGHT
Continued

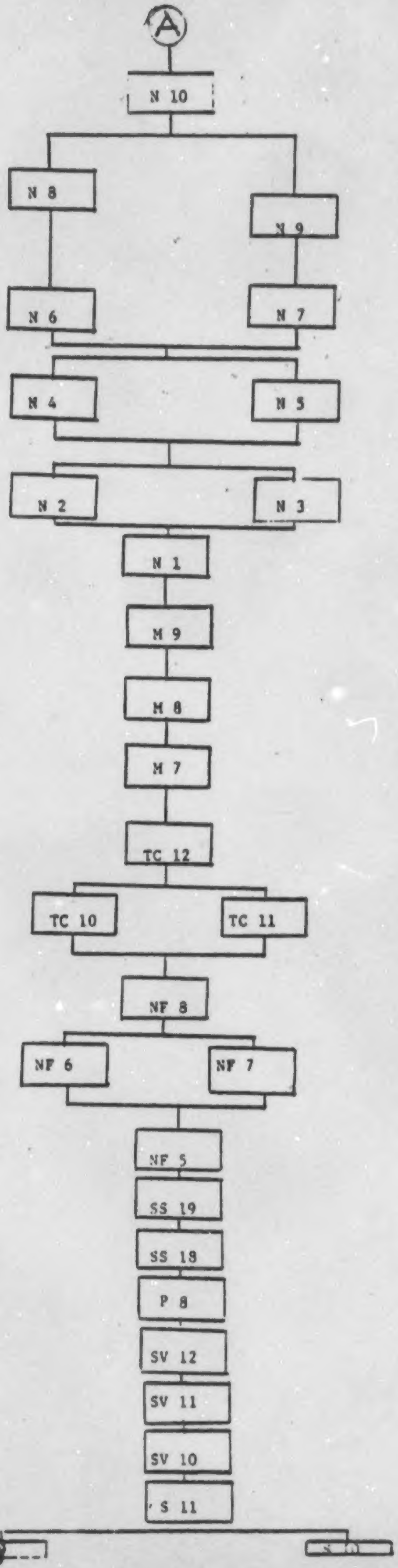

CW 10
CW 9
CW 8
CW 7
LSS 11
LSS 10
LSS 9
LSS 8
LSS 5
LSS 6
LSS 7
LSS 4
LSS 3
LSS 1
LSS 2
D

ENGLISH (EIGHTH)

TABLE C-10
LANGUAGE ARTS/
ENGLISH
INTEGRATED
HIERARCHY
LEVEL NINE


CW 22
CW 20
CW 21
CW 19
CW 16
CW 17
CW 18
CW 15
CW 14
CW 13
CW 12
CW 11
D 9
D 6
D 7
D 8
D 5
D 3
D 4
D 1
D 2
N 10
A

ENGLISH (NINTH GRADE)


A
N 10
N 8
N 9
N 6
N 7
N 4
N 5
N 2
N 3
N 1
M 9
M 8
M 7
TC 12
TC 10
TC 11
NF 8
NF 6
NF 7
NF 5
SS 19
SS 18
P 8
SV 12
SV 11
SV 10
S 11

Abbreviations for Objectives in Tables C-11 through C-17

CL = Classifying

CO = Communicating

EXP = Experimenting

FHY = Formulating Hypotheses

IDV = Identifying Variables

INP = Inferring/Predicting

ITD = Interpreting Data

ME = Measuring

OBS = Observing

UST = Using Space/Time Relationships

TABLE C-11
SCIENCE INTEGRATED HIERARCHY
LEVELS ONE-TWO

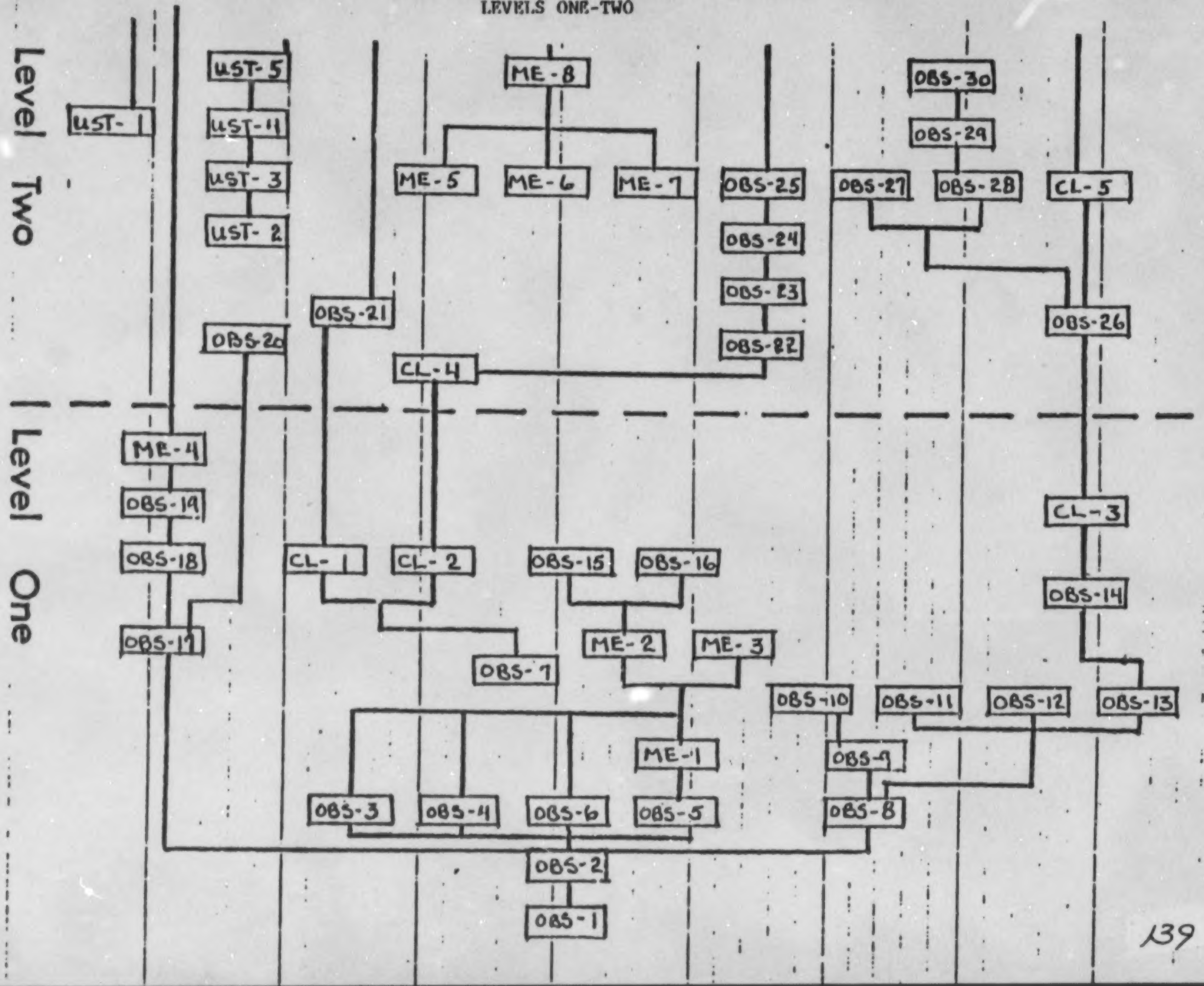

Level Two
Level One
UST-1
UST-5
UST-4
UST-3
UST-2
OBS-20
OBS-21
ME-8
ME-5
ME-6
ME-7
CL-4
OBS-25
OBS-24
OBS-23
OBS-22
OBS-30
OBS-29
OBS-27
OBS-28
CL-5
OBS-26
ME-4
OBS-19
OBS-18
OBS-17
CL-1
CL-2
OBS-15
OBS-16
CL-3
OBS-14
OBS-7
ME-2
ME-3
OBS-10
OBS-11
OBS-12
OBS-13
ME-1
OBS-9
OBS-3
OBS-4
OBS-6
OBS-5
OBS-8
OBS-2
OBS-1

TABLE C-12
SCIENCE INTEGRATED HIERARCHY
LEVEL THREE

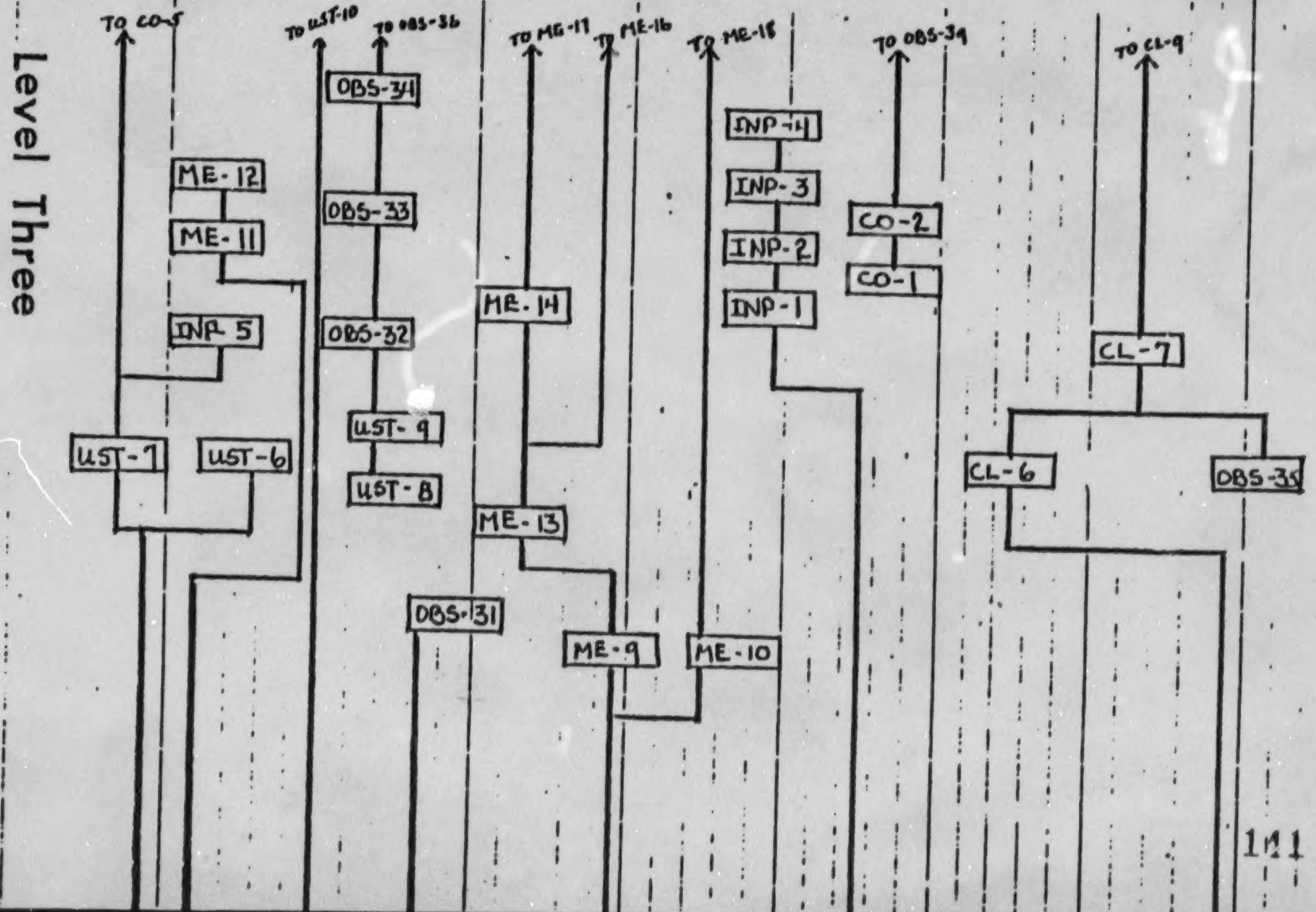

Level Three
TO CO-5
ME-12
ME-11
INP 5
UST-7
UST-6
TO UST-10
TO OBS-36
OBS-34
OBS-33
OBS-32
UST-9
UST-8
TO ME-17
TO ME-16
ME-14
ME-13
OBS-31
ME-9
TO ME-18
INP-4
INP-3
INP-2
INP-1
ME-10
TO OBS-39
CO-2
CO-1
TO CL-9
CL-7
CL-6
OBS-35

TABLE C-13
SCIENCE INTEGRATED HIERARCHY
LEVELS FOUR-FIVE

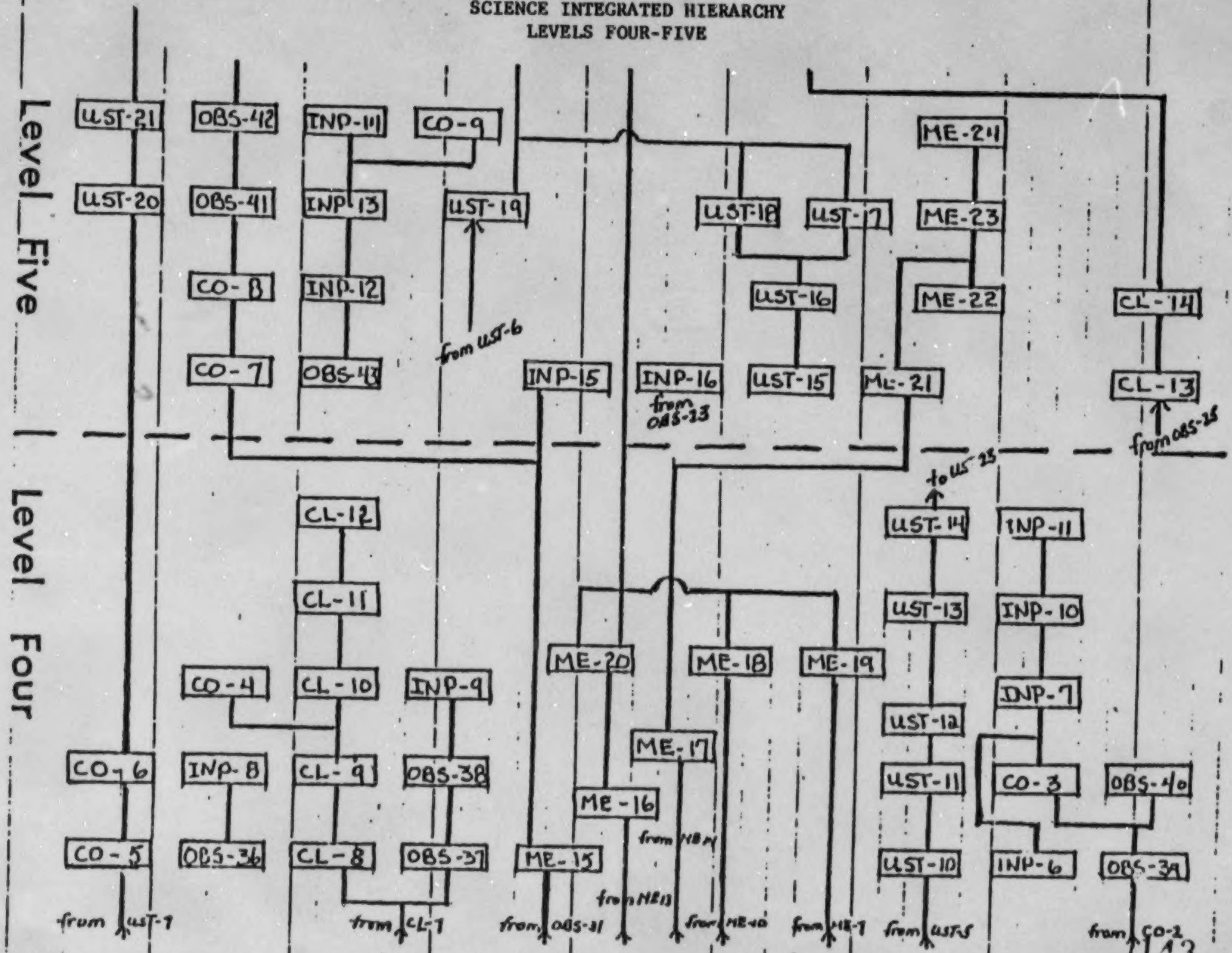

Level Five
Level Four
UST-21
OBS-42
INP-14
CO-9
UST-20
OBS-41
INP 13
UST-19
UST-18
UST-17
ME-24
ME-23
CO-8
INP-12
from UST-6
UST-16
ME-22
CL-14
CO-7
OBS-43
INP-15
INP-16
from OBS-23
UST-15
ME-21
CL-13
from OBS-25
to US-25
UST-14
INP-11
CL-12
CL-11
UST-13
INP-10
ME-20
ME-18
ME-19
CO-4
CL-10
INP-9
INP-7
UST-12
ME-17
CO-6
INP-8
CL-9
OBS-38
UST-11
CO-3
OBS-40
ME-16
from ME-14
CO-5
OBS-36
CL-8
OBS-37
ME-15
UST-10
INP-6
OBS-39
from ME13
from UST-7
from CL-7
from OBS-31
from ME-10
from ME-7
from UST-5
from CO-2

TABLE C-14
SCIENCE INTEGRATED HIERARCHY
LEVELS FIVE-SIX

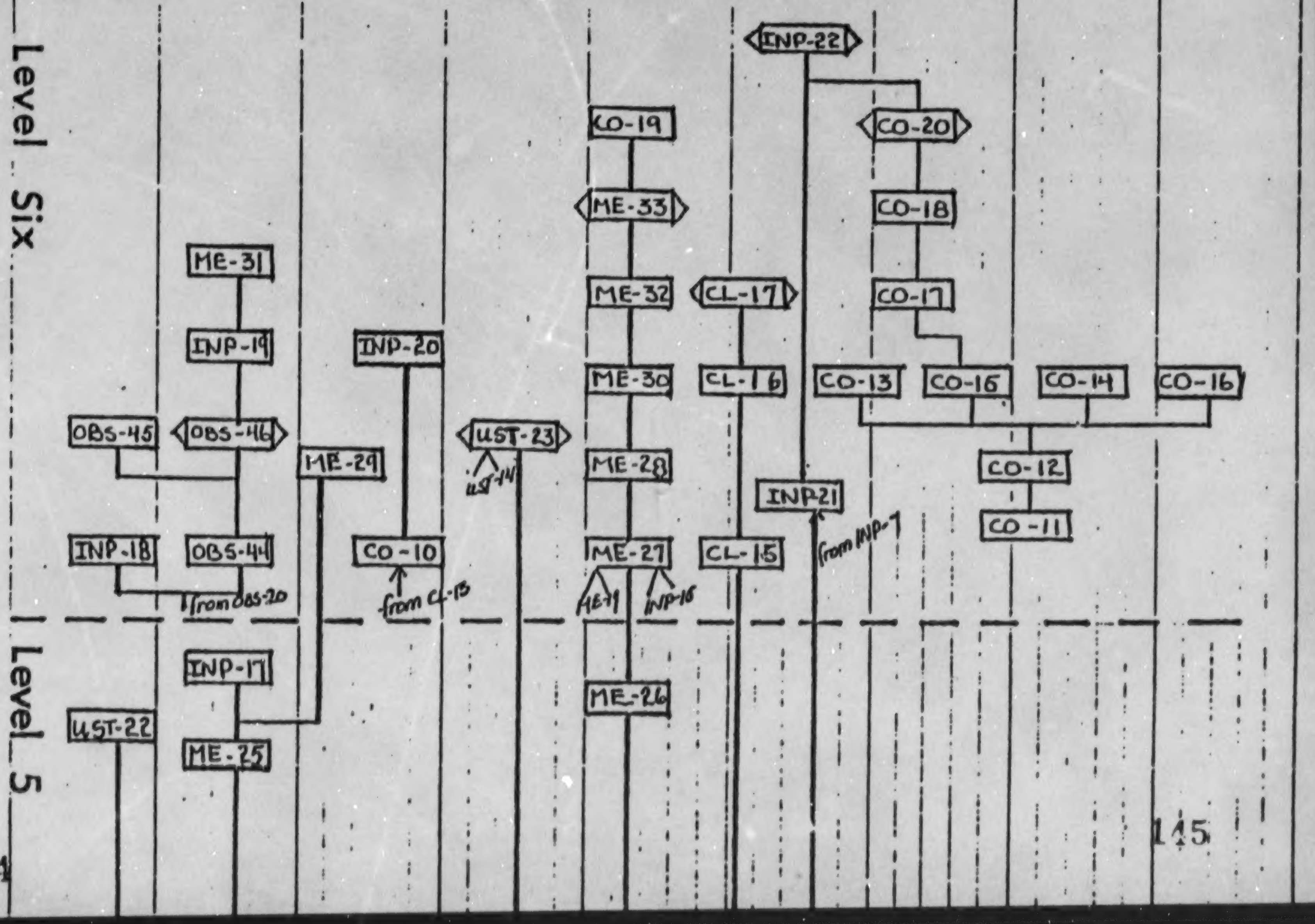

Level Six
Level 5
INP-22
CO-19
CO-20
ME-33
CO-18
ME-31
ME-32
CL-17
CO-17
INP-19
INP-20
ME-30
CL-16
CO-13
CO-16
CO-14
CO-16
OBS-45
OBS-46
UST-23
ME-29
UST-14
ME-28
CO-12
INP-21
CO-11
INP-18
OBS-44
CO-10
ME-27
CL-15
from INP-7
from OBS-20
from CL-13
ME-19
INP-16
INP-17
ME-26
UST-22
ME-25

TABLE C-15
SCIENCE INTEGRATED HIERARCHY
LEVEL SEVEN

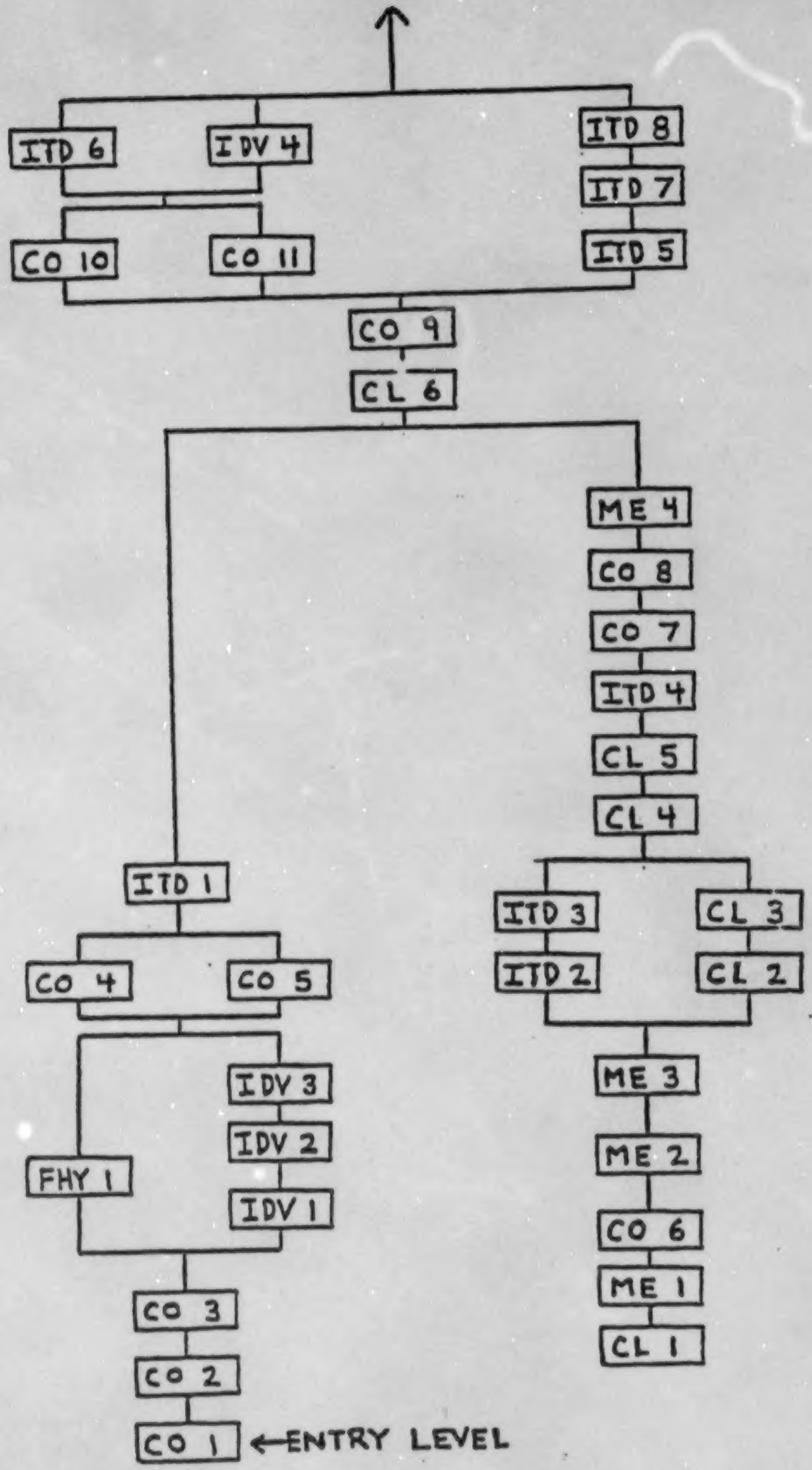

ITD 6
IDV 4
ITD 8
ITD 7
ITD 5
CO 10
CO 11
CO 9
CL 6
ME 4
CO 8
CO 7
ITD 4
CL 5
CL 4
ITD 1
ITD 3
CL 3
ITD 2
CL 2
CO 4
CO 5
IDV 3
IDV 2
IDV 1
FHY 1
ME 3
ME 2
CO 6
ME 1
CL 1
CO 3
CO 2
CO 1
←ENTRY LEVEL

TABLE C-15
LEVEL SEVEN
Continued

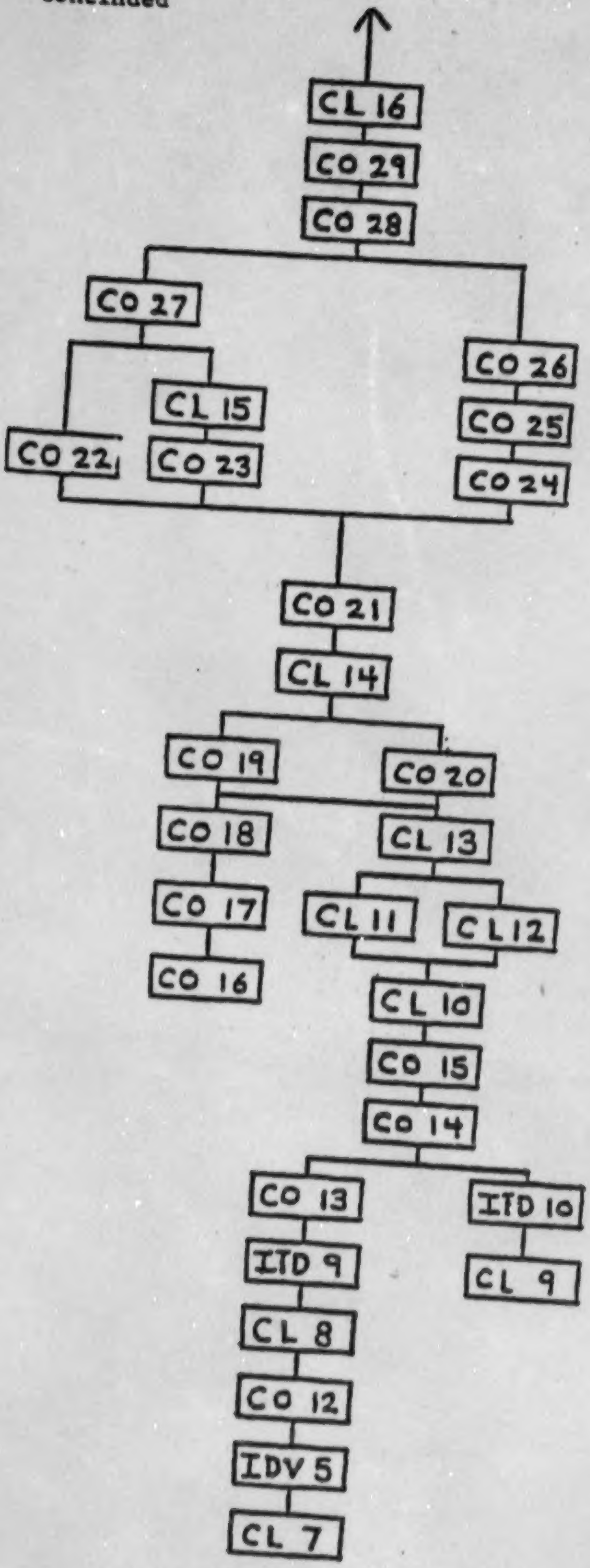

CL 16
CO 29
CO 28
CO 27
CO 26
CL 15
CO 25
CO 22
CO 23
CO 24
CO 21
CL 14
CO 19
CO 20
CO 18
CL 13
CO 17
CL 11
CL 12
CO 16
CL 10
CO 15
CO 14
CO 13
ITD 10
ITD 9
CL 9
CL 8
CO 12
IDV 5
CL 7

TABLE C-16
SCIENCE INTEGRATED HIERARCHY
LEVEL EIGHT

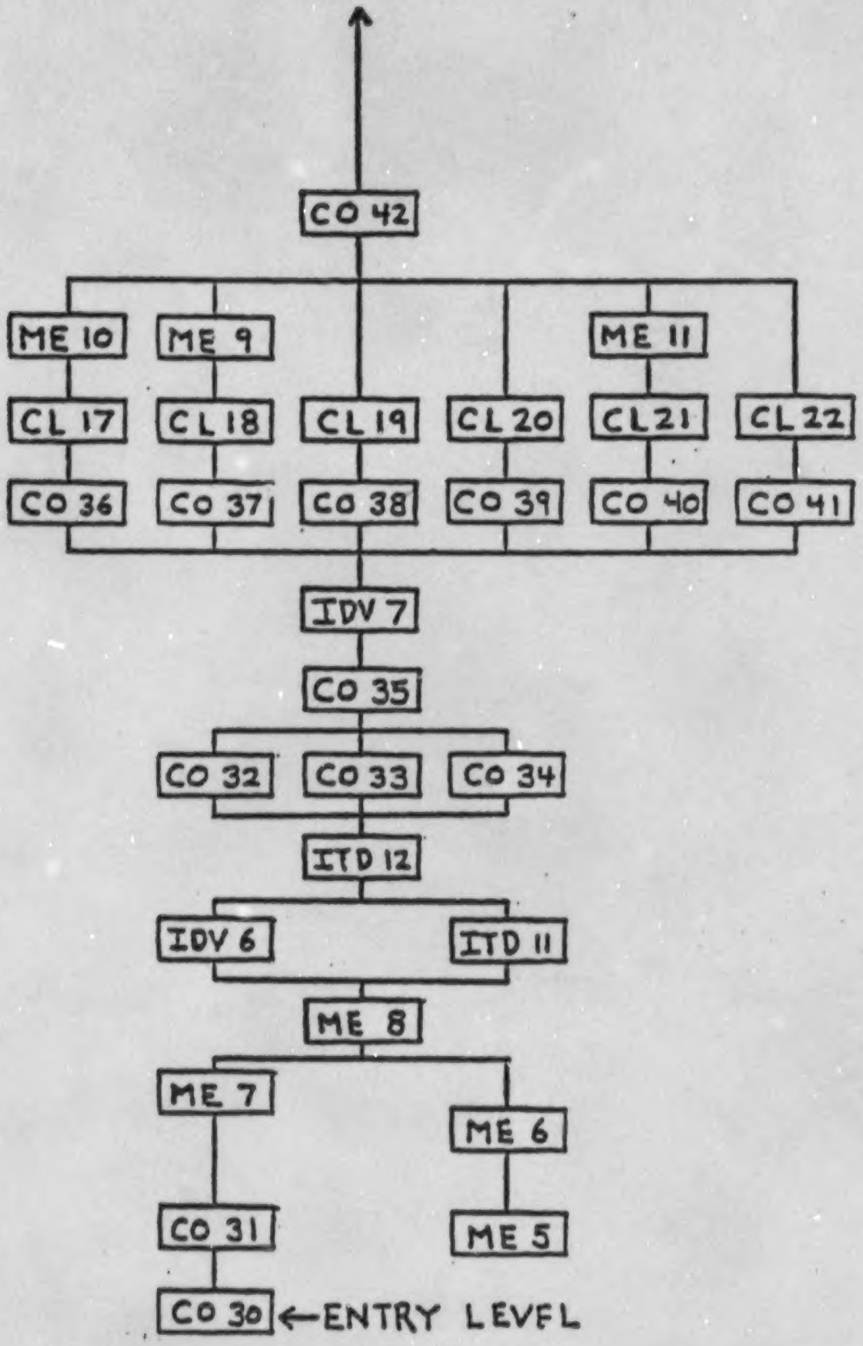

CO 42
ME 10
ME 9
ME 11
CL 17
CL 18
CL 19
CL 20
CL 21
CL 22
CO 36
CO 37
CO 38
CO 39
CO 40
CO 41
IDV 7
CO 35
CO 32
CO 33
CO 34
ITD 12
IDV 6
ITD 11
ME 8
ME 7
ME 6
CO 31
ME 5
CO 30
←ENTRY LEVEL

TABLE C-16
LEVEL EIGHT
Continued

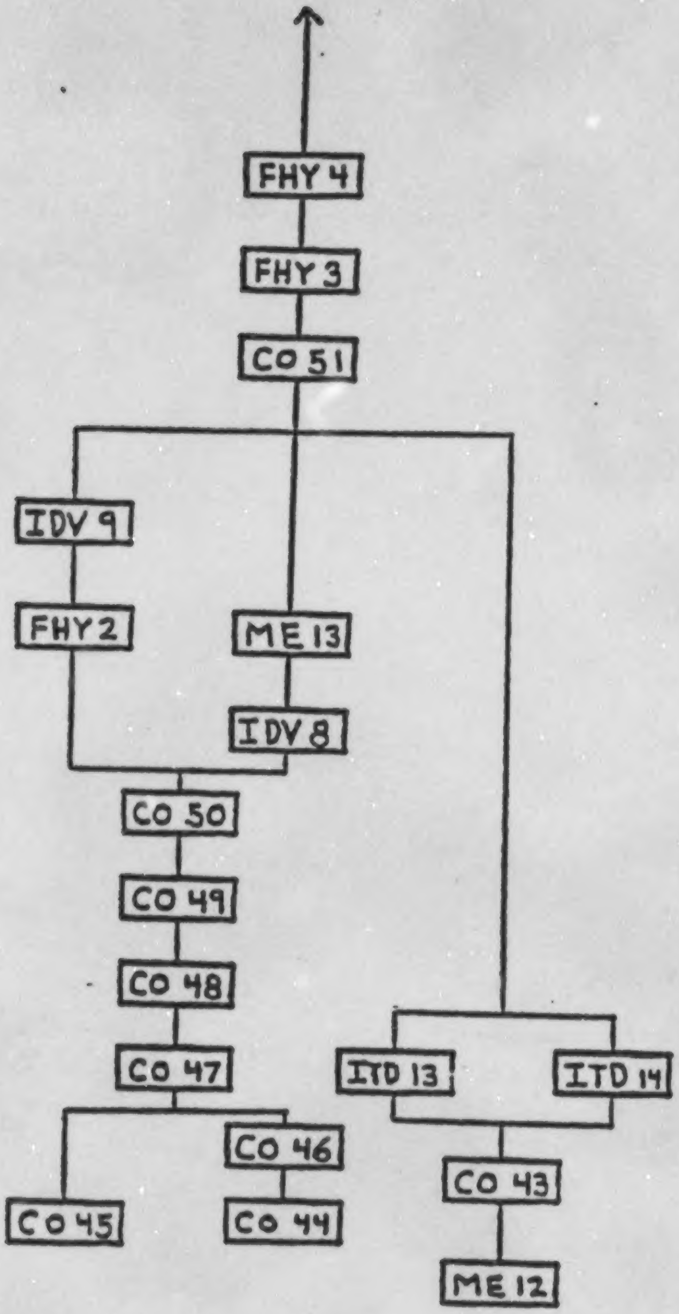

FHY 4
FHY 3
CO 51
IDV 9
FHY 2
ME 13
IDV 8
CO 50
CO 49
CO 48
CO 47
ITD 13
ITD 14
CO 46
CO 45
CO 44
CO 43
ME 12

TABLE C-17
SCIENCE INTEGRATED HIERARCHY
LEVEL NINE

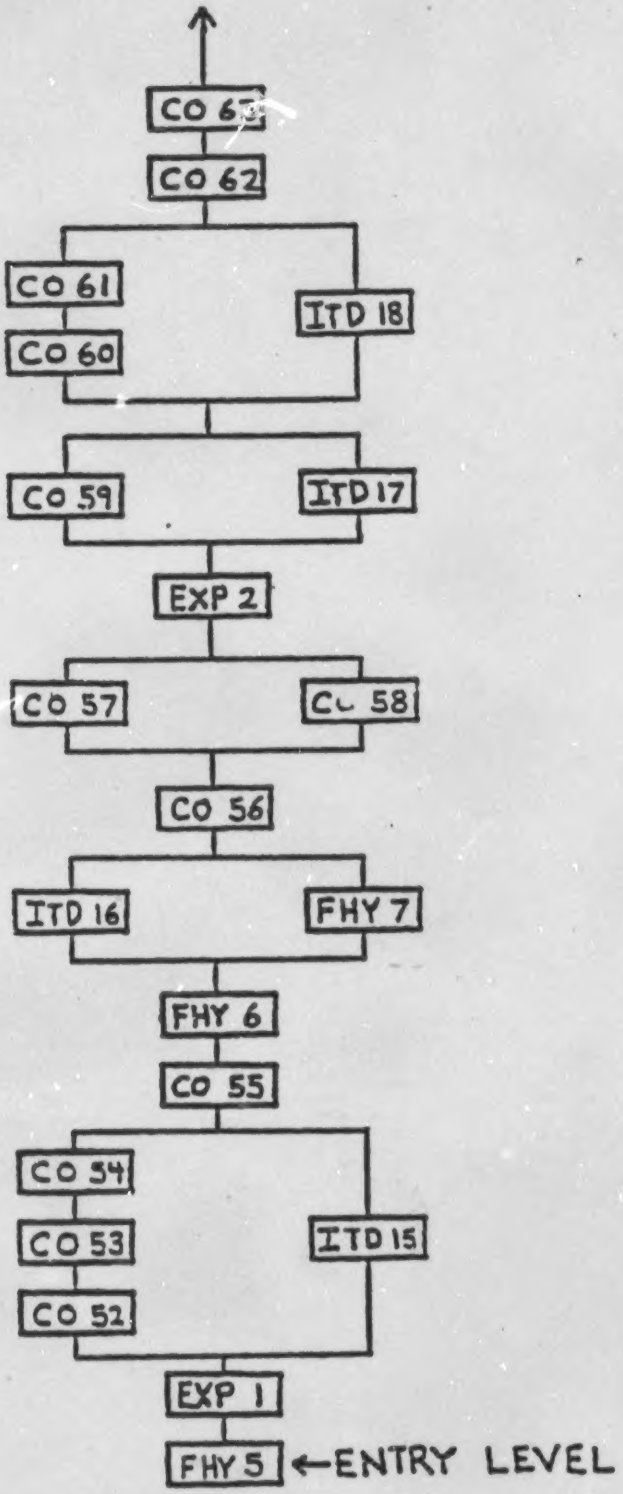

CO 63
CO 62
CO 61
CO 60
ITD 18
CO 59
ITD 17
EXP 2
CO 57
CO 58
CO 56
ITD 16
FHY 7
FHY 6
CO 55
CO 54
CO 53
CO 52
ITD 15
EXP 1
FHY 5
←ENTRY LEVEL

TABLE C-17
LEVEL NINE
Continued

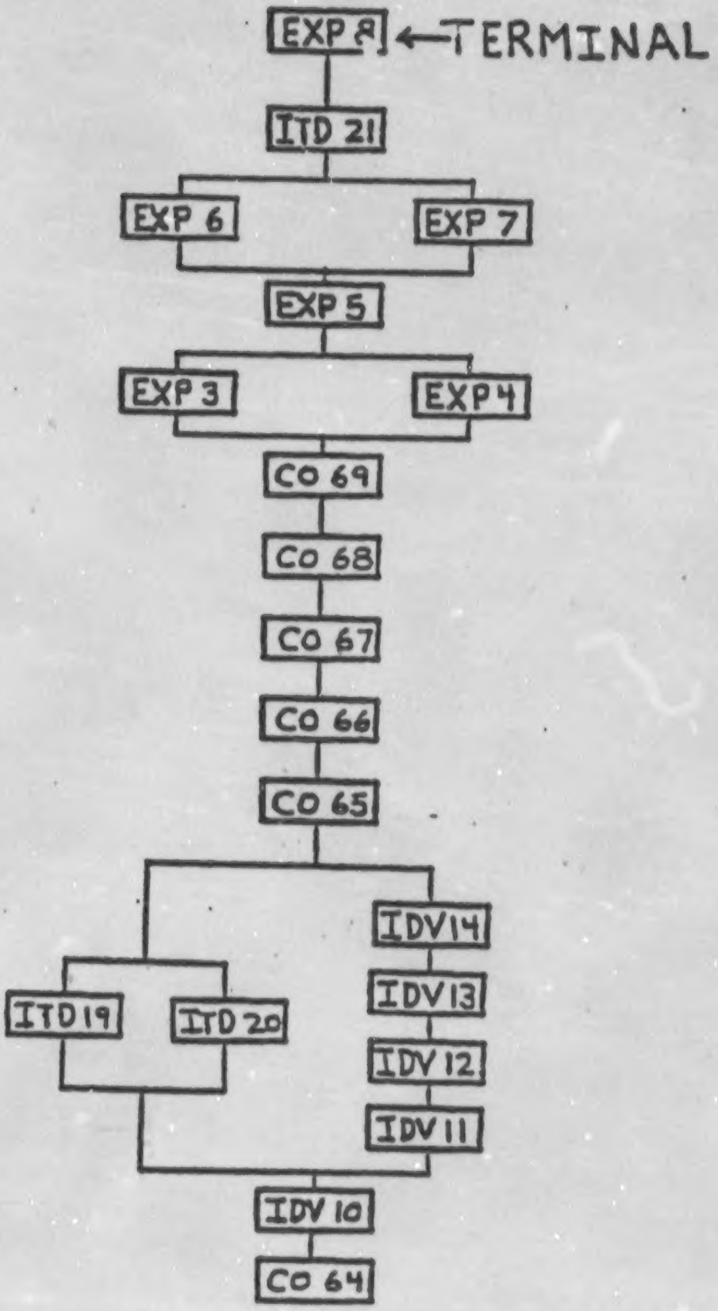

EXP 8
TERMINAL
ITD 21
EXP 6
EXP 7
EXP 5
EXP 3
EXP 4
CO 69
CO 68
CO 67
CO 66
CO 65
IDV 14
IDV 13
IDV 12
IDV 11
ITD 19
ITD 20
IDV 10
CO 64

TABLE C-18
CBC VALIDATION 1978-79
Number of Objectives to be Validated by Subject Area and by Grade Level

Grades	Language Arts/English	Science	Total
Pk-K	10	-	10
1	25	26	51
2	28	22	50
3	37	24	61
4	32	31	63
5	51	28	79
6	41	30	71
7	66	65	131
8	85	48	133
9	50	41	91
Total	425	315	740

APPENDIX D

TABLE D-1

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Task Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 1								
L-3	58%	2%	4%	0%	23%	4%	4%	4%
LT-4	64%	2%	8%	5%	8%	5%	3%	5%
GU-2	70%	4%	3%	7%	10%	0%	1%	3%
GU-4	81%	0%	1%	1%	1%	1%	3%	10%
GU-6	78%	3%	3%	4%	8%	0%	4%	1%
SS-5	96%	0%	0%	4%	0%	0%	0%	0%
SS-6	33%	25%	8%	0%	0%	0%	17%	17%
SS-7	27%	18%	0%	9%	27%	0%	9%	9%
SP-4	64%	0%	9%	0%	18%	0%	9%	0%
P-2	83%	0%	0%	17%	0%	0%	0%	0%
L-5	93%	0%	2%	0%	5%	0%	0%	0%
SP-5	82%	0%	0%	0%	18%	0%	0%	0%
Level 2								
LT-5	69%	1%	7%	0%	7%	1%	13%	1%
LT-6	71%	0%	0%	0%	20%	0%	9%	0%
L-6	73%	9%	6%	9%	3%	0%	1%	0%
L-7	84%	5%	0%	0%	0%	0%	0%	11%
SP-6	100%	0%	0%	0%	0%	0%	0%	0%
SP-7	56%	2%	8%	2%	17%	4%	10%	2%
GU-10	74%	0%	7%	0%	9%	0%	0%	10%
GU-11	79%	1%	4%	3%	1%	1%	1%	8%
GU-13	80%	4%	4%	0%	4%	0%	2%	6%
SS-10	77%	0%	11%	0%	7%	2%	2%	0%
SS-11	43%	20%	0%	13%	0%	22%	0%	2%
C-3	48%	0%	0%	8%	4%	0%	12%	28%
P-7	70%	22%	0%	4%	0%	0%	0%	4%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

TABLE D-1 (Continued)

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Tast Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 2 (cont.)								
P-8	31%	12%	0%	2%	0%	22%	0%	33%
P-10	0%	100%	0%	0%	0%	0%	0%	0%
Level 3								
SS-13	20%	4%	4%	4%	20%	12%	0%	36%
SS-14	52%	4%	0%	32%	8%	0%	0%	4%
SS-15	60%	0%	13%	0%	13%	7%	7%	0%
SS-16	28%	22%	11%	6%	0%	11%	6%	17%
Level 4								
L-9	80%	2%	4%	4%	1%	2%	3%	5%
SP-11	68%	14%	1%	1%	8%	4%	0%	4%
CW-4	65%	15%	0%	3%	0%	6%	0%	12%
GU-26	66%	2%	16%	2%	3%	2%	6%	5%
SS-20	31%	58%	0%	8%	0%	0%	0%	4%
Level 5								
L-10	71%	25%	0%	0%	0%	0%	0%	4%
ST-6	41%	52%	0%	0%	0%	0%	0%	7%
ST-7	82%	0%	6%	3%	0%	3%	0%	6%
SP-14	82%	0%	0%	6%	6%	0%	6%	0%
Level 6								
L-12	97%	2%	1%	0%	1%	0%	0%	0%
L-13	92%	2%	0%	0%	0%	0%	0%	6%
L-14	100%	0%	0%	0%	0%	0%	0%	0%
L-16	79%	1%	1%	0%	16%	1%	2%	0%
LT-20	74%	2%	0%	13%	0%	3%	0%	8%
LT-21	76%	16%	1%	2%	0%	0%	0%	5%
GU-52	78%	2%	6%	3%	2%	0%	0%	10%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

TABLE D-1 (Continued)

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Task Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 6 (cont.)								
GU-53	82%	4%	5%	2%	0%	2%	1%	5%
ST-8	70%	6%	2%	7%	0%	0%	0%	15%
SS-33	75%	4%	0%	4%	4%	0%	0%	14%
Level 7								
C-1	20%	10%	0%	0%	10%	10%	0%	50%
C-2	44%	11%	11%	11%	0%	11%	0%	11%
C-3	56%	11%	11%	22%	0%	0%	0%	0%
C-4	40%	0%	30%	20%	0%	0%	0%	10%
C-5	50%	0%	50%	0%	0%	0%	0%	0%
C-6	56%	0%	33%	0%	0%	0%	11%	0%
POS-1	29%	2%	4%	29%	9%	2%	2%	22%
SS-1	62%	19%	6%	5%	0%	3%	0%	4%
SS-2	72%	4%	5%	3%	3%	5%	5%	3%
SS-3	50%	14%	3%	6%	3%	9%	0%	15%
SS-4	70%	6%	2%	4%	0%	2%	0%	16%
SS-5	56%	6%	22%	0%	6%	11%	0%	0%
SS-6	68%	0%	14%	0%	18%	0%	0%	0%
NF-1	63%	13%	17%	4%	0%	0%	0%	4%
NF-2	21%	0%	7%	14%	7%	7%	14%	29%
Level 8								
S-5	84%	0%	0%	5%	0%	0%	0%	11%
S-6	80%	0%	0%	5%	0%	0%	0%	15%
S-7	45%	20%	0%	5%	0%	0%	3%	28%
S-8	63%	0%	0%	8%	16%	8%	0%	5%
POS-6	14%	7%	14%	18%	2%	9%	4%	33%
POS-7	7%	7%	7%	7%	10%	7%	7%	48%
POS-9	10%	24%	3%	10%	14%	14%	10%	14%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

TABLE D-1 (Continued)

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Task Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 8 (cont.)								
POS-10	0%	4%	36%	50%	0%	0%	0%	11%
POS-11	7%	15%	4%	19%	4%	0%	4%	48%
LSS-4	4%	50%	0%	38%	0%	0%	0%	8%
LSS-6	43%	11%	11%	4%	14%	7%	7%	4%
Level 9								
S-9	66%	7%	2%	5%	2%	2%	3%	16%
S-10	50%	0%	12%	5%	19%	0%	9%	5%
S-11	79%	0%	0%	2%	5%	0%	3%	11%
SV-10	75%	4%	3%	3%	4%	4%	1%	6%
SV-11	58%	4%	5%	1%	3%	5%	0%	24%
SV-12	49%	3%	4%	0%	24%	1%	4%	15%
P-8	59%	1%	7%	9%	6%	0%	3%	16%
SS-18	55%	7%	4%	7%	10%	3%	6%	8%
M-7	50%	10%	0%	20%	0%	0%	0%	20%
D-3	59%	6%	12%	0%	12%	12%	0%	0%
D-4	85%	8%	0%	0%	0%	0%	0%	8%
D-5	50%	0%	50%	0%	0%	0%	0%	0%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

TABLE D-2

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Task Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 1								
OBS-1	47%	13%	2%	1%	8%	1%	5%	23%
OBS-2	60%	12%	5%	3%	2%	0%	3%	16%
OBS-3	80%	4%	1%	8%	0%	0%	0%	7%
OBS-4	55%	12%	0%	0%	5%	2%	0%	25%
OBS-5	54%	22%	1%	2%	1%	0%	0%	20%
OBS-6	68%	12%	3%	0%	0%	0%	0%	18%
CL-1	82%	8%	0%	0%	8%	3%	0%	0%
CL-2	82%	0%	0%	0%	9%	0%	9%	0%
ME-1	44%	6%	4%	7%	0%	0%	1%	37%
ME-3	71%	9%	0%	14%	0%	0%	0%	6%
OBS-15	74%	14%	0%	12%	0%	0%	0%	0%
OBS-16	67%	4%	25%	4%	0%	0%	0%	0%
OBS-9	50%	0%	0%	0%	0%	0%	0%	50%
Level 2								
UST-1	35%	19%	14%	8%	0%	0%	0%	24%
UST-2	56%	9%	2%	0%	0%	2%	5%	26%
UST-4	66%	17%	1%	8%	3%	1%	3%	1%
UST-5	23%	22%	8%	11%	8%	1%	3%	23%
ME-5	55%	0%	0%	0%	2%	0%	0%	43%
ME-6	58%	42%	0%	0%	0%	0%	0%	0%
ME-7	30%	33%	18%	6%	0%	0%	0%	12%
ME-8	42%	3%	45%	9%	0%	0%	0%	0%
OBS-20	67%	24%	0%	3%	0%	0%	0%	6%
OBS-21	76%	6%	6%	0%	12%	0%	0%	0%
OBS-22	26%	3%	65%	3%	0%	0%	0%	3%
OBS-25	59%	37%	3%	0%	1%	0%	0%	0%
OBS-27	71%	12%	6%	2%	6%	4%	0%	0%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

TABLE D-2 (Continued)

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Task Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 3								
UST-6	60%	29%	0%	5%	5%	2%	0%	0%
UST-7	35%	11%	6%	37%	3%	3%	0%	5%
INP-5	46%	35%	14%	0%	2%	0%	2%	2%
ME-11	80%	12%	4%	4%	0%	0%	0%	0%
ME-14	32%	14%	0%	0%	18%	9%	5%	23%
UST-8	23%	9%	41%	9%	5%	0%	9%	5%
UST-9	30%	13%	4%	4%	17%	9%	0%	22%
OBS-32	70%	9%	4%	7%	6%	2%	0%	1%
OBS-33	49%	12%	19%	6%	4%	3%	3%	4%
OBS-34	67%	11%	0%	7%	0%	11%	0%	4%
CO-1	83%	0%	0%	9%	0%	0%	0%	9%
Level 4								
CO-5	70%	10%	7%	2%	0%	0%	0%	11%
CO-6	35%	8%	12%	6%	14%	9%	1%	17%
CL-8	24%	14%	8%	20%	10%	8%	1%	14%
OBS-37	62%	0%	6%	3%	0%	0%	1%	28%
OBS-38	0%	0%	0%	0%	0%	0%	0%	100%
INP-9	63%	33%	4%	0%	0%	0%	0%	0%
CL-9	22%	2%	12%	2%	15%	7%	0%	39%
CL-10	79%	6%	6%	0%	9%	0%	0%	0%
CO-4	24%	3%	11%	0%	8%	0%	0%	54%
CL-11	16%	11%	11%	22%	2%	2%	2%	33%
ME-15	0%	0%	0%	0%	0%	0%	0%	100%
ME-16	0%	0%	0%	0%	0%	0%	0%	100%
ME-17	16%	2%	3%	0%	8%	2%	0%	70%
ME-18	51%	0%	0%	0%	0%	0%	0%	49%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

TABLE D-2 (Continued)

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Task Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 4 (Cont.)								
ME-19	54%	0%	0%	2%	0%	0%	0%	44%
ME-20	58%	0%	0%	0%	0%	0%	0%	42%
UST-10	22%	0%	0%	0%	0%	0%	0%	78%
UST-11	0%	0%	0%	0%	0%	0%	0%	100%
UST-12	0%	0%	0%	0%	0%	0%	0%	100%
UST-13	6%	0%	0%	0%	0%	0%	0%	94%
UST-14	0%	0%	0%	0%	0%	0%	0%	100%
OBS-36	37%	4%	15%	12%	1%	0%	6%	25%
INP-8	35%	32%	26%	0%	6%	0%	0%	0%
CO-3	42%	0%	16%	0%	11%	0%	0%	32%
INP-7	40%	15%	25%	0%	20%	0%	0%	0%
INP-11	44%	17%	22%	0%	17%	0%	0%	0%
OBS-39	0%	0%	0%	0%	0%	0%	0%	100%
Level 5								
OBS-43	65%	3%	0%	0%	23%	10%	0%	0%
UST-17	86%	14%	0%	0%	0%	0%	0%	0%
UST-19	70%	10%	10%	0%	0%	0%	0%	10%
OBS-41	59%	12%	0%	0%	18%	6%	6%	0%
Level 6								
CO-11	70%	9%	3%	2%	8%	2%	5%	3%
CO-12	61%	12%	2%	0%	20%	2%	2%	0%
CO-16	83%	5%	0%	0%	2%	0%	7%	2%
CO-13	71%	1%	1%	0%	15%	0%	10%	1%
CO-15	65%	6%	12%	0%	6%	0%	6%	6%
CO-18	48%	3%	45%	3%	0%	0%	0%	0%
Level 7								
CO-1	70%	15%	2%	5%	5%	3%	0%	2%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

TABLE D-2 (Continued)

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Task Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 7 (cont.)								
CO-3	83%	8%	0%	3%	5%	2%	0%	0%
FHY-1	79%	5%	8%	3%	0%	0%	0%	6%
IDV-1	71%	2%	3%	6%	3%	2%	8%	6%
IDV-2	63%	3%	19%	0%	8%	0%	3%	3%
IDV-3	78%	6%	11%	0%	3%	0%	0%	3%
CO-4	67%	5%	18%	0%	5%	0%	0%	5%
CO-5	58%	7%	8%	5%	7%	3%	7%	5%
ITD-1	76%	3%	11%	0%	8%	3%	0%	0%
CL-1	68%	0%	4%	0%	16%	1%	6%	4%
ME-1	42%	13%	15%	13%	3%	3%	3%	7%
CO-6	52%	9%	9%	3%	24%	3%	0%	0%
ME-2	61%	5%	21%	0%	3%	5%	0%	5%
ME-3	49%	3%	11%	5%	0%	3%	11%	19%
ITD-2	74%	11%	5%	0%	11%	0%	0%	0%
ITD-3	24%	0%	18%	0%	0%	0%	24%	35%
CL-2	71%	0%	25%	0%	4%	0%	0%	0%
CL-3	68%	0%	3%	3%	18%	0%	6%	3%
CL-4	79%	8%	0%	0%	4%	4%	4%	0%
ITD-4	92%	3%	3%	0%	3%	0%	0%	0%
CO-7	64%	9%	9%	0%	18%	0%	0%	0%
CO-8	71%	0%	0%	6%	24%	0%	0%	0%
ME-4	88%	6%	6%	0%	0%	0%	0%	0%
Level 8								
CO-30	59%	1%	7%	4%	1%	0%	0%	26%
CO-31	84%	11%	2%	2%	0%	0%	2%	0%
ME-7	79%	8%	2%	0%	6%	0%	0%	5%
ME-5	74%	0%	0%	5%	0%	5%	5%	11%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

TABLE D-2 (Continued)

PERCENT OF STUDENTS SUCCESSFULLY COMPLETING THE THREE ASSESSMENT TASKS FOR SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST 85 PERCENT OF THE STUDENTS AND/OR IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

	Eight Possible Combinations of Assessment Task Results.							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Objective	+ + +	+ + -	+ - +	+ - -	- + +	- + -	- - +	- - -
Level 8 (cont.)								
ME-6	81%	4%	0%	7%	0%	1%	0%	6%
ME-8	71%	8%	2%	9%	0%	0%	0%	11%
IDV-6	51%	22%	0%	17%	0%	0%	2%	7%
ITD-11	78%	0%	0%	6%	0%	6%	6%	6%
CO-34	73%	10%	0%	5%	0%	0%	5%	7%
CO-35	68%	11%	0%	4%	4%	0%	7%	7%
CO-44	73%	9%	18%	0%	0%	0%	0%	0%
ME-13	82%	18%	0%	0%	0%	0%	0%	0%
Level 9								
FHY-5	71%	0%	0%	4%	0%	0%	0%	25%
EXP-1	29%	0%	36%	36%	0%	0%	0%	0%
ITD-15	77%	0%	0%	0%	0%	0%	0%	23%
EXP-2	79%	0%	0%	0%	5%	0%	0%	16%

"+" indicates an assessment task Successfully completed.

"-" indicates an assessment task Not successfully completed.

APPENDIX E

TABLE E-1
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH CAPITALIZATION OBJECTIVES
LEVELS ONE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
C-1	1	5	5	5	6	5	2			
C-2	1	15	6	3	3	3	3	2	2	3
C-3	2	15	3	5	3	3	5	6	6	4
C-4	2	15	5	5	3	6	6	4	3	
C-5	3	15	5	6	3	6	3	2	5	2
C-6	3	15	6	6	3	3	3	4	4	8
C-7	3	15	5	5	3	3	6	3	3	7
C-8	3	15	5	3	6	6	6	3	4	4
C-9	4	15	5	6	3	6	6	3	9	4
C-10	4	15	1	6	6	3	2	5	3	4
C-11	4	15	3	2	3	4	3	2	4	4
C-12	5	15	2	2	6	6	6	2	4	5
C-13	5	15	5	6	3	6	6	2	4	4
C-14	5	15	6	6	6	6	6	5	5	5
C-15	6	15	6	15	15	15	15	7	8	8

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-2
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH CREATIVE WRITING OBJECTIVES
LEVELS THREE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CW-1	3	12	15	12	8	12	15	3	4	4
CW-2	3	15	15	15	18	18	18	6	8	8
CW-3	3	15	15	15	18	18	18	4	3	6
Cw-4	4	15	9	9	15	9	9	4	3	7
Cw-5	4	15	15	15	15	15	18	3	4	5
CW-6	4	15	15	15	5	5	18	4	6	4
CW-7	5	18	15	15	18	18	18	4	4	4
CW-8	5	18	18	18	18	18	18	4	2	3
CW-9	5	15	15	15	10	18	18	5	6	6
CW-10	5	18	15	15	18	18	18	5	7	4
CW-11	6	18	15	15	18	18	18	4	3	10
CW-12	6	18	18	18	18	18	18	4	7	3
CW-13	6	18	10	15	18	18	18	3	9	8

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-3
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH GRAMMAR USAGE OBJECTIVES
LEVELS ONE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			L.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
GU-1	1	3	1	2	1	2	2			3
GU-2	1	3	3	3	18	3	3		1	4
GU-3	1	5	6	6	5	5	5			
GU-4	1	5	5	5	2	2	2	2	4	5
GU-5	1	3	3	9	3	3	9			
GU-6	1	3	3	3	3	3	3	2	2	1
GU-7	1	3	3	3	3	3	3		1	1
Gu-8	1	4	5	4	5	5	5	2	2	2
GU-9	1	5	5	5	5	5	5		1	1
GU-10	2	2	2	2	2	2	2	2	1	
GU-11	2	5	5	5	5	5	5	4	6	4
GU-12	2	5	5	5	5	5	5	2	1	1
GU-13	2	5	10	10	10	10	10	4	4	3
GU-14	2	5	10	10	10	10	10	4	3	3
GU-15	2	5	10	10	10	10	10	2	1	2
GU-16	2	5	10	10	10	10	10		3	
GU-17	3	10	10	10	10	10	15	3	3	3
GU-18	3	6	6	6	6	6	6	2	2	2
GU-19	3	10	10	10	10	10	10	4	2	3
GU-20	3	5	15	15	10	10	10	3		4
GU-21	3	5	12	10	10	10	10	3	2	3

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-3
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH GRAMMAR USAGE OBJECTIVES
LEVELS ONE-SIX

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
GU-22	3	10	10	10	10	10	10	2	3	2
GU-23	3	10	10	10	10	10	10	5	4	4
GU-24	3	10	6	10	10	6	10	5	7	4
GU-25	3	10	10	10	10	10	10	2	5	3
GU-26	4	10	10	15	10	10	15	7	3	6
GU-27	4	5	5	15	5	5	15	3	6	5
GU-28	4	5	5	15	5	10	15	2	5	7
GU-29	4	5	10	10	10	10	15	3	4	3
GU-30	4	10	10	10	10	10	10	3	6	7
GU-31	4	10	5	10	10	10	10	4	3	3
GU-32	5	10	5	10	10	10	10	2	5	7
GU-33	5	10	5	5	10	10	10	4	2	4
GU-34	5	10	10	10	10	10	10	4	5	4
GU-35	5	15	10	10	10	15	15	4	4	3
GU-36	5	10	10	10	10	10	10	5	5	4
GU-37	5	15	10	15	15	15	15	5	5	3
GU-38	5	5	5	5	5	10	10	7	6	4
GU-39	5	10	10	10	10	10	10	4	4	5
GU-40	5	10	10	10	10	10	10	4	5	8
GU-41	5	10	5	10	10	10	10	4	5	4
GU-42	5	10	10	10	10	10	10	5	5	6

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-3
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH GRAMMAR USAGE OBJECTIVES
LEVELS ONE-SIX

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
GU-43	5	10	10	10	10	10	10	7	7	8
GU-44	5	9	4	9	12	15	18	5	8	4
GU-45	5	3	6	3	6	3	18	6	3	6
GU-46	5	5	5	15	5	5	10	4	3	3
GU-47	5	5	5	18	5	18	5	6	4	6
GU-48	5	15			9	5	15	3	3	2
GU-49	6	15	5	5	5	5	15	1	1	3
GU-50	6	15	5	15	5	15	15	2	5	3
GU-51	6	15	5	15	15	5	15	2	3	2
GU-52	6	15	5	15	5	15	15	2	2	3
GU-53	6	15	15	5	18	5	15	4	2	4
GU-54	6	18	15	18	6	18	18	9	10	6

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-4
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH LISTENING OBJECTIVES
LEVELS K-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
L-1	K	3	6	6	2	6	6			
L-2	K	2	2	2	2	8	8			
L-3	1	2	2	5	15	5	3			
L-4	1	3	9	9	6	9	9			
L-5	1	12	2	4	4	4	12			
L-6	2	3	3	3	3	3	3			
L-7	2	5	4	5	12	6	12			
L-8	3	3	3	3	1	9	3			
L-9	4	18	9	1	3	6	18			
L-10	5	18	6	6	6	6	18			
L-11	5	4	15	4	2	12	2			
L-12	6	15	6	3	12	3	3			
L-13	6	15	8	12	8	3	12			
L-14	6	15	18	18	18	18	18			
L-15	6	15	18	18	18	18	9			
L-16	6	10	5	12	10	3	12			
L-17	6	15	3	15	3	12	18			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-5
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH LITERATURE OBJECTIVES
LEVELS K-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
LT-1	K	6	3	4	4	2	2			
LT-2	1	6	6	9	12	6	9			
LT-3	1	9	9	18	9	9	18			
LT-4	1	3	3	3	3	9	6			
LT-5	2	4	4	18	4	18	8			4
LT-6	2	4	4	6	9	4	18			
LT-7	2	12	18	12	12	12	18			
LT-8	3	12	4	12	12	8	18			
LT-9	3	5	5	5	15	15	5			
LT-10	3	4	6	6	2	2	2	4	4	3
LT-11	4	15	15	18	4	12	12	3	4	5
LT-12	4	4	12	12	15	8	18	5	3	5
LT-13	4	4		15	4	4	15	6	6	4
LT-14	4	4	15	2	4	10	9	6	5	3
LT-15	5	3	9	3	4	3	3	6	8	4
LT-16	5	2	2	2	4	2	4		7	7
LT-17	5	9	3	9	5	4	6		5	4
LT-18	5	3	10	12	18	18	18	5		
LT-19	5	3	4	4	10	18	12	3		5
LT-20	6	12	12	18	12	18	18	4	3	4
LT-21	6	4	4	12	12	9	3	2	3	6

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-5
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH LITERATURE OBJECTIVES
LEVELS K-SIX

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
LT-22	6	4	8	8	4	4	18	3		
LT-23	6	4		4	9	4	15	8	9	10
LT-24	6	12	12	4	2	5	2	5	7	9
LT-25	6	18	18	6	2	12	6	6		4

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-6
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH MASS MEDIA OBJECTIVES
LEVELS FOUR-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
MM-1	4	4	6	4	2	6	18	6	8	6
MM-2	5	6	4	4	12	12	18	10	8	7
MM-3	5	4	18	18	12	6	12	6	5	8
MM-4	5	4	4	4	6	12	4	10	5	5
MM-5	5	2	4	18	4	18	18	10	6	10
MM-6	6	12	12	12	12	18	4	8	7	4
MM-7	6	12	12	12	18	12	18	9	6	14

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-7
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH PUNCTUATION OBJECTIVES
LEVELS ONE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
P-1	1	15	6	3	15	3	15			
P-2	1	15	5	3	3	6	6	2	2	2
P-3	2	15		3	18	18	6	4	7	3
P-4	2	15	4	4	4	15	15	2	4	6
P-5	2	15			15	15	18	4	4	
P-6	2	15	2	9	6	9	6		5	3
P-7	2	15		3	3	18	9	2	2	3
P-8	2	15	9	3	15	18	18	3	5	2
P-9	2	15	5	5	5	2	5	3	2	3
P-10	2	15	5	5	5	15	15	3	2	4
P-11	3	15	5	5	5	6	6	4	2	4
P-12	3	15	5	10	5	15	15	2	4	8
P-13	3	15	15	15	5	15	15	4	4	3
P-14	3	15	5	10	5	10	10	2	8	3
P-15	4	15	6	6	6	6	18	4	3	2
P-16	4	15	15	15	6	15	15	6	4	5
P-17	4	15	3	6	3	6	18	4	6	6
P-18	4	15	15	6	18	6	18	8	5	11
P-19	4	15	3	18	18	18	18	4	4	6
P-20	5	15	15	2	2	15	15	5	2	3
P-21	5	15	6	6	6	6	18	3	3	4

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-7
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH PUNCTUATION OBJECTIVES
LEVELS ONE-SIX

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
P-22	5	15	9	6	6	9	6	4	5	3
P-23	5	15	12	6	12	12	18	4	3	6
P-24	6	15	2	2	2	9	2	6	4	5
P-25	6	15	2	2	3	5	5	4	5	7
P-26	6	15	6	12	5	12	18	5	3	2
P-27	6	15	1	6	6	12	6	4	4	4
P-28	6	15	6	6	6	15	15	5	8	5
P-29	6	15	12	12	12	12	12	5	5	4

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-8
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH SENTENCE STRUCTURE OBJECTIVES
LEVELS PreK-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
SS-1	PRE-K	6	4	4	4	4	12			
SS-2	K	3	3	2	3	2	3			
SS-3	K	3	3	2	3	2	3			
SS-4	K	2	1	6	2	2	1			
SS-5	1	9	3	3	9	3	9	2	6	2
SS-6	1	12	6	18	6	18				
SS-7	1	12	12	10	18	18	18	5	8	5
SS-8	1	6	12	12	12	12	12	5	4	3
SS-9	2	12	3	12	3	12	12	2	3	3
SS-10	2	4	4	4	4	8	8	5	3	5
SS-11	2	15	4	18	4	18	15	5	8	4
SS-12	3	15		15	15	15	15	4	3	5
SS-13	3	18	15	15	15	18	18	3	4	4
SS-14	3	18	18	18	18	18	18	2	4	3
SS-15	3	10	10	18	8	12	10	6	5	5
SS-16	3	4	4	18	4	18	15	6	4	6
SS-17	3	15	4	8	15	15	15	4	7	7
SS-18	3	15	15	15	5	15	18	6	2	6
SS-19	3	18		2	15	15	15	6	4	4
SS-20	4	12	10	6	10	6	10	4	4	5
SS-21	4	15	15	15	15	15	18	6	4	

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-8
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH SENTENCE STRUCTURE OBJECTIVES
LEVELS PreK-SIX

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
SS-22	4	4	4	4	4	4	4	6	7	6
SS-23	4	15	4	18	18	18	18	2	3	2
SS-24	4	15	4	12	15	15	18	4	4	4
SS-25	5	10	10	10	10	10	10	7	7	7
SS-26	5	12	18	15	18	18	18	6	8	4
SS-27	5	5	5	10	10	10	10	7	7	5
SS-28	5	15	18	18	15	10	18	4	4	3
SS-29	5	15		10	18	15	18	5	4	6
SS-30	5	4	4	4	4	4	5	3	6	6
SS-31	5	18	4	4	18	18	18	4	4	3
SS-32	5	15	3	6	3	6	15	3	5	2
SS-33	6	18	3	10	18	18	18	4	5	5
SS-34	6	15	15	15	12	12	18	6	6	5
SS-35	6	15	3		15	10	18	4	7	7

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-9
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH SPEAKING OBJECTIVES
LEVELS K-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
SP-1	K	3	3	3	3	3	9			
SP-2	K	15	18	18	18	18	18			
SP-3	K	12	12	12	12	12	12			
SP-4	1	15	12	18	18	6	18			
SP-5	1	8	15	18	18	18	18			
SP-6	2	12	12	18	12	12	12			
SP-7	2	9	2	18	6	18	18			
SP-8	3	15	18	15	5	18	6			
SP-9	3	15	3	15	15	18	9			
SP-10	3	12	8	12	6	8	8			
SP-11	4	9	2	9	2	9	2			
SP-12	4	4	4	4	4	12	4			
SP-13	5	12	15	18	9	12	18			
SP-14	5	3	3	18	18	9	3			
SP-15	6	12	6	18	5	15	15			
SP-16	6	15	15	15	12	12	12			
SP-17	6	15	5	15	12	12	15			
SP-18	6	15	15	15	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-10
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH STUDY SKILLS OBJECTIVES
LEVELS THREE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
ST-1	3	5	5	5	10	5	5	6	2	3
ST-2	3	6	18	18	18	12	12		4	5
ST-3	3	18	5	15	15	15	15	4	6	5
ST-4	4	4	4	4	4	15	18	5	5	5
ST-5	4	5	4	5	6	10	6	6	6	10
ST-6	5	5	5	5	15	15	15	7	7	4
ST-7	5	6	12	4	4	4	4	3	3	7
ST-8	6	6	5	5	5	5	6	7	7	6
ST-9	6	18	18	18	4	6	18	6	7	8
ST-10	6	15	15	15	18	18	18	5	9	5
ST-11	6	8	4	15	4	4	4	6	9	5

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-11
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH CAPITALIZATION OBJECTIVES
LEVEL SEVEN

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
C-1	7	15	15	15	15	15	15		6	
C-2	7	15	15	15	15	15	15			4
C-3	7	15	5	15	15	15	15	5	4	4
C-4	7	15	5	15	15	15	15		10	
C-5	7	15	5	15	15	15	15		4	
C-6	7	15	15	5	15	15	15		10	4

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-12
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH CREATIVE WRITING OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			L.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CW-1	7	15	3	15	15	15	15			
CW-2	7	2	2	2	2	2	2	9	8	11
CW-3	7	4	2	2	2	2	2	6	5	6
CW-4	7	18	6	2	6	6	6	6	4	4
CW-5	7	18	18	18	18	18	18			
CW-6	7	18	15	15	18	18	18			
CW-7	8	2	2	2	2	2	2	8	5	5
CW-8	8	12	4	12	12	12	4			
CW-9	8	15	15	15	15	15	15			
CW-10	8	18	15	15	18	18	18			
CW-11	9	12	2	12	12	4	4		8	
CW-12	9	12	12	12	12	12	12	4	5	3
CW-13	9	15	15	15	15	15	15			
CW-14	9	15	5	15	18	18	18	5	6	6
CW-15	9	15	15	15	15	15	15	6	7	5
CW-16	9	15	15	15	15	15	15	5	6	6
CW-17	9	15	15	15	15	15	15			
CW-18	9	15	15	15	15	15	15			
CW-19	9	15	15	15	15	15	15			
CW-20	9	15	15	15	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-12
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH CREATIVE WRITING OBJECTIVES
LEVELS SEVEN-NINE

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CW-21	9	15	15	15	15	15	15	8	7	6
CW-22	9	15		15	15	15	15		3	

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-13
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH DRAMA OBJECTIVES
LEVEL NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
D-1	9	2	2	2	2	2	2	6	3	5
D-2	9	4	4	4	4	4	4	5	6	6
D-3	9	4	12	4	6	2	2		5	4
D-4	9	12	4	12	4	6	2	6	5	5
D-5	9	8	8	12	6	6	6	6	6	
D-6	9	4	4		4	12	12			
D-7	9	4		4	4	4	4			5
D-8	9	12	12	6	12	12	12	6		
D-9	9	15	10	10	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-14
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH LISTENING OBJECTIVES
LEVELS SEVEN-EIGHT

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
L-1	7	15	4	15	15	15	15			
L-2	7	15	15	15	15	15	15			
L-3	7	15	15	15	15	15	15			
L-4	8	15	15	6	2	4	18	8	3	
L-5	8	6	6	6	6	6	6	5	7	6
L-6	8	8	8	8	8	8	8	5	5	5
L-7	8	12	12	12	12	12	12			
L-8	8	4	2	2	2	2	2			
L-9	8	15	15	15	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-15
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH MYTHS, LEGENDS, AND TALES OBJECTIVES
LEVELS EIGHT-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
M-1	8	4	4	2	2	2	2			
M-2	8	6	6	6	12	6	6			
M-3	8	12	4	12	6	6	6			
M-4	8	6	2	12	2	2	6			
M-5	8	2	2	2	2	2	2			
M-6	8	12	12	12	4	4	4			7
M-7	9	6	6	6	6	6	6			
M-8	9	6	6	2	6	6	12	2	9	5
M-9	9	15	15	15	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-16
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH NONFICTION OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
NF-1	7	4		4	4	4	4	9	6	8
NF-2	7	12		4	12	4	6	12	10	
NF-3	8	12	8	12	15	15	15			
NF-4	8	5		5	2	2	2			9
NF-5	9	4		12	2	2	2	4	8	7
NF-6	9	9	9	9	9	9	9	9	12	
NF-7	9	2		2	2	3	3	5	8	
NF-8	9	4		6	2	2	2		7	7

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-17
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH NOVEL OBJECTIVES
LEVEL NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
N-1	9	12		12	12	6	6	8		3
N-2	9	12	12	12	12	12	12	8		
N-3	9	12	12	12	12	12	12	6		8
N-4	9	4	4	12	8	4	12			
N-5	9	9	9	9	9	4	4			
N-6	9	9	9	9	9	9	9			
N-7	9	9	9	9	9	9	9	8		5
N-8	9	4	12	12	2	4	6			
N-9	9	18	18	18	18	18	18			9
N-10	9	18	18	4	12	12	12		7	

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-18
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH PARAGRAPHS OBJECTIVES
LEVELS SEVEN-EIGHT

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
PA-1	7	15	15	15	15	15	15	6		
PA-2	7	15	15	15	15	15	15		6	9
PA-3	7	5	2	2	2	2	2	10	10	7
PA-4	7	15	15	15	15	15	15			
PA-5	7	15	15	15	10	10	15	7	6	8
PA-6	7	15		15	15	15	15	10	8	9
PA-7	7	10		10	10	10	10	9		
PA-8	8	18		18	18	18	18			
PA-9	8	15	15	15	18	18	18			
PA-10	8	18		18	18	18	18			
PA-11	8	18	5	18	18	18	18	5		
PA-12	8	15	15	15	15	15	15			7
PA-13	8	18	18	18	18	18	18			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-19
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH PARTS OF SPEECH OBJECTIVES
LEVELS SEVEN-EIGHT

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
POS-1	7	4	5	2	2	2	2			4
POS-2	7	4	2	4	2	2	2		2	6
POS-3	7	4	2	2	2	2	2		2	4
POS-4	7	4	2	2	2	2	2	5	3	4
POS-5	7	4	2	2	2	2	2	5	3	3
POS-6	8	4	2	2	2	2	2	3		4
POS-7	8	4	2	2	2	2	2	5	5	5
POS-8	8	4	2	2	2	2	2		4	5
POS-9	8	4	2	6	2	2	2	3	6	
POS-10	8	4	2	2	2	2	2		4	
POS-11	8	4	6	2	2	2	2		5	4
POS-12	8	4	2	2	2	2	2		4	6

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-20
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH POETRY OBJECTIVES
LEVEL SEVEN

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
LT-P 1	7	3	3	3	3	3	3			
LT-P 2	7	2	2	2	2	2	2			
LT-P 3	7	3	3	3	3	3	3			
LT-P 4	7	12	12	12	4	4	4			
LT-P 5	7	4	2	12	4	4	4			
LT-P 6	7	12	12	12	15	15	15			
LT-P 7	7	12	12	12	12	12	12			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-21
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH PRONOUN USAGE OBJECTIVES
LEVELS SEVEN-EIGHT

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
PRO-1	7	15	15	15	15	15	15	5	5	5
PRO-2	7	15	15	15	15	15	15	3	3	5
PRO-3	7	15	15	15	15	15	15	4	4	4
PRO-4	7	15	15	15	15	15	15	2	2	2
PRO-5	8	15	15	15	15	15	15	3	4	4
PRO-6	8	15	15	15	15	15	15	4	5	5
PRO-7	8	15	15	15	15	15	15	6	5	4
PRO-8	8	15	15	15	15	15	15	9	7	8

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-22
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH PUNCTUATION OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
P-1	7	15	15	15	15	15	15			6
P-2	7	15	15	15	15	15	15			
P-3	8	2	1	2	2	2	2		4	7
P-4	8	2	2	2	2	2	2	11	9	6
P-5	8	6	6	6	6	6	6	6	6	7
P-6	8	2	15	2	2	2	2	4	6	
P-7	8	6	15	15	6	6	6			5
P-8	9	6	15	5	15	15	15	5	4	6

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-23
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH SENTENCE STRUCTURE OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
SS-1	7	2	6	2	2	2	2	3	3	5
SS-2	7	2	2	2	2	2	2	3	4	5
SS-3	7	2	2	2	2	2	2	3	3	5
SS-4	7	4	6	2	2	2	2	4	3	3
SS-5	7	4	2	2	2	2	2	5	3	2
SS-6	7	6	3	9	3	6	6	2		
SS-7	7	9	9	3	3	9	3	3		3
SS-8	7	6	2	2	2	2	2	4		5
SS-9	8	3		3	3	3	3	8	8	8
SS-10	8	5		5	5	2	5	5	6	5
SS-11	8	5		5	5	5	5	5	4	6
SS-12	8	3		3	3	3	3	6	5	7
SS-13	8	4	2	2	2	2	2	7	7	6
SS-14	8	9	9	9	9	9	9		4	
SS-15	8	3	3	3	3	3	3	8	5	5
SS-16	8	4	2	2	2	2	2	3	3	6
SS-17	8	2	3	3	2	2	2	7	6	6
SS-18	9	15	2	3	9	9	9	4	3	4
SS-19	9	15	15	15	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-24
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH SHORT STORY OBJECTIVES
LEVEL EIGHT

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
LSS-1	8	5	15	15	2	12	4	4	4	4
LSS-2	8	4	4	4	4	12	4	4		4
LSS-3	8	4	2	2	2	2	2	2	4	
LSS-4	8	4	12	12	12	12	12			4
LSS-5	8	4	2	2	2	2	2			
LSS-6	8	2		2	2	2	2	7		
LSS-7	8	12	4	10	12	8	12	6	8	6
LSS-8	8	4	2	6	2	2	2	5		
LSS-9	8	2	9	9	9	2	9		5	6
LSS-10	8	9	9	6	3	9	3			
LSS-11	8	12	12		12	12	12			5

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-25
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH SPEAKING OBJECTIVES
LEVELS SEVEN-EIGHT

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
SP-1	7	15	15	15	5	15	15	6		
SP-2	7	15	15	15	15	15	15	8		6
SP-3	7	15		15	15	15	15	4		
SP-4	7	15	15	15	15	15	15			
SP-5	8	15	15	15	15	15	15			
SP-6	8	15	15	15	15	15	15	7		
SP-7	8	15	15	15	15	15	15	6		
SP-8	8	15	15	15	15	15	15			
SP-9	8	15	15	15	15	15	15			
SP-10	8	15	5	15	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-26
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH SPELLING OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
S-1	7	15		15	15	15	15	4		
S-2	7	15		15	15	15	15	3		
S-3	7	15	15	15	15	15	15	3		
S-4	7	15	15	15	15	15	15			
S-5	8	15	15	15	15	15	15	4		
S-6	8	15		15	15	15	15	3		
S-7	8	2	2	2	2	2	2	2		3
S-8	8	2		2	2	2	2		9	9
S-9	9	6	6	6	6	6	6			
S-10	9	15	15	15	15	15	15			
S-11	9	15		15	15	15	15		6	

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-27
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH SUBJECT/VERB AGREEMENT OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
SV-1	7	9	9	9	9	9	9			
SV-2	7	15	12	15	15	15	15	3	2	3
SV-3	7	15	15	5	15	15	15	4	4	5
SV-4	8	2	2	6	2	2	2	5	7	6
SV-5	8	15	15	5	5	5	15	4	5	
SV-6	8	15	10	15	5	5	5	6	8	9
SV-7	8	15	5	15	15	15	15	3	3	5
SV-8	8	15	15	15	15	15	15	5	6	7
SV-9	8	15	15	15	15	15	15	4	4	5
SV-10	9	15	15	15	15	15	15	5	7	5
SV-11	9	15	15	15	15	15	15	6	8	6
SV-12	9	15	15	5	15	15	15		4	

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-28
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH THEMES AND COMPOSITION OBJECTIVES
LEVELS EIGHT-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
TC-1	8	18	18	18	18	18	18	4	6	9
TC-2	8	18	18	18	15	15	15	5	8	
TC-3	8	15		15	15	15	15			
TC-4	8	15	15	15	15	15	15			
TC-5	8	15	15	18	15	15	15			
TC-6	8	15	15	15	15	15	15			
TC-7	8	15	15	15	15	15	15			
TC-8	8	15	15	15	15	15	15			
TC-9	8	15	3	9	15	15	15			
TC-10	9	12	12	12	12	12	12			
TC-11	9	15	15	15	18	18	18			
TC-12	9	18	18	18	18	18	18			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-29
PUISSANCE VALUES AND FOG GRADES
LANGUAGE ARTS/ENGLISH VERB USAGE OBJECTIVES
LEVEL SEVEN

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
VU-1	7	15	15	15	15	15	15	3	4	5
VU-2	7	10	10	10	10	10	10			
VU-3	7	2	2	6	2	2	2	4	4	3
VU-4	7	10	15	5	5	5	5	4	6	5
VU-5	7	15	15	15	15	15	15	5	4	6

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-30
PUISSANCE VALUES AND FOG GRADES
SCIENCE CLASSIFYING OBJECTIVES
LEVELS ONE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CL-1	1	8	8	8	8	8	8			
CL-2	1	4	4	4	2	2	2			
CL-3	1	4	2	4	2	2	2			
CL-4	2	2	2	2	4	2				
CL-5	2	2	2	2	2	2	2			
CL-6	3	12	12	12	12	12	12			
CL-7	3	12	12	12	18	18	18			
CL-8	4	12	12	12	4	4	4			
CL-9	4	8	8	12	4	4	4			
CL-10	4	4	2	2	2	4	2			
CL-11	4	2	2	4	2	2	2			
CL-12	4	6	6	6	6	6	6			
CL-13	5	6	4	6	6	6	6			
CL-14	5	6	4	4	2	2	2			
CL-15	6	15	15	15	5	5	5			
CL-16	6	6	2	2	2	2	2			
CL-17	6	18	18	18	2	2	2			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-31
PUISSANCE VALUES AND FOG GRADES
SCIENCE COMMUNICATING OBJECTIVES
LEVELS THREE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CO-1	3	9	3	9	3	9	3			
CO-2	3	18	18	18	18	18	18			
CO-3	4	12	12	12	8	12	12			
CO-4	4	6	2	6		6	2			
CO-5	4	18	18	15		15	5			
CO-6	4	12	12	4	4	12	4			
CO-7	5	9	9	9	9	3	3			
CO-8	5	15			2	6	2			
CO-9	5	15	6	6	15	15	5			
CO-10	6	15	15	15	2	15	2			
CO-11	6	6	6	15	2	6	2			
CO-12	6	6			9	2	4			
CO-13	6	12	4	12	12	12	4			
CO-14	6	12	12	12	4	4	4			
CO-15	6	4	4	12	2	2	2			
CO-16	6	12	12	12	6	4	2			
CO-17	6	9	9	9	9	9	9			
CO-18	6	18	15	18	18	15	6			
CO-19	6	9	9	9	9	3	3			
CO-20	6	3	1	1	1	1	1			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-32
PUISSANCE VALUES AND FOG GRADES
SCIENCE INFERRING/PREDICTING OBJECTIVES
LEVELS THREE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
INP-1	3	6	6	6	6	6	6			
INP-2	3	4	4	4	4	4	4			
INP-3	3	18	18	18	18	18	18			
INP-4	3	18	18	18	18	18	18			
INP-5	3	15	15	15	15	15	15			
INP-6	4	6	6	6	6	6	6			
INP-7	4	18	18	18	18	18	18			
INP-8	4	15	15	15	5	5	5			
INP-9	4	15	15	15	5	5	15			
INP-10	4	4	4	12	4	4	4			
INP-11	4	18	18	18	18	18	18			
INP-12	5	15	15	15	5	5	5			
INP-13	5									
INP-14	5	15	15	15	15	15	15			
INP-15	5	15	15	15	5	5	5			
INP-16	5	15	15	15	15	15	15			
INP-17	5	15	15	15	15	5	5			
INP-18	6	15		15	15	15	15			
INP-19	6	15	15	15	5	5	5			
INP-20	6	15	15	15	5	5	5			
INP-21	6	18	18	18	6	6	6			
INP-22	6	18	12	15	6	6	6			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-33
PUISSANCE VALUES AND FOG GRADES
SCIENCE MEASURING OBJECTIVES
LEVELS ONE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
ME-1	1	4	4	4	4	4	4			
ME-2	1	4	4	15	4	4	4			
ME-3	1	4	4	4	4	4	4			
ME-4	1	4	4	4	4	4	4			
ME-5	2	9	9	9	9	9	9			
ME-6	2	9	9	9	9	9	9			
ME-7	2	9	9	9	9	9	9			
ME-8	2	10	10	10	10	10	10			
ME-9	3	9	9	9	3	3	3			
ME-10	3	9	9	9	3	3	3			
ME-11	3	15	3	3	3	3	3			
ME-12	3	9	9	9	3	3	3			
ME-13	3	9	9	9	9	9	9			
ME-14	3	15	15	15	15	15	15			
ME-15	4	15	15	15	5	15	15			
ME-16	4	9	9	9	9	9	9			
ME-17	4	9	9	9	9	6	6			
ME-18	4	15	15	15	15	15	15			
ME-19	4	9	9	9	9	9	9			
ME-20	4	9	9	9	9	9	9			
ME-21	5	15	15	15	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-33
PUISSANCE VALUES AND FOG GRADES
SCIENCE MEASURING OBJECTIVES
LEVELS ONE-SIX

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
ME-22	5	9	9	9	3	3	3			
ME-23	5	9	9	9	3	3	3			
ME-24	5	9	9	9	3	3	3			
ME-25	5	18	18	18	5	5	5			
ME-26	5	9	9	9	3	3	3			
ME-27	6	15	15	15	15	15	15			
ME-28	6	9	9	9	3	9	3			
ME-29	6	15	15	15	5	5	5			
ME-30	6	15	15	15	2	15	10			
ME-31	6	15	15	15	15	15	15			
ME-32	6	6	6	6	6	3	6			
ME-33	6	9	9	9	9	9	9			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-34
PUISSANCE VALUES AND FOG GRADES
SCIENCE OBSERVING OBJECTIVES
LEVELS ONE-SIX

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
OBS-1	1	2	2	2	6	2				
OBS-2	1	2	2	2	2	2	2			
OBS-3	1	2	2	2	4	2	2			
OBS-4	1	2	2	2	2	2	2			
OBS-5	1	4	4	4	4	4	4			
OBS-6	1	2	2	2	2	2	2			
OBS-7	1	6	6	6	6	6	6			
OBS-8	1	4	4	4	4	4	4			
OBS-9	1	2	2	2	2	2	2			
OBS-10	1	2	2	2	2	2	2			
OBS-11	1	2	6	6	2	2	2			
OBS-12	1	2	2	2	2	2	2			
OBS-13	1	2	2	2	2	2	2			
OBS-14	1	2	2	6	2	2	2			
OBS-15		6	6	6		6	6			
OBS-16	1	15	15	15	15	15	15			
OBS-17	1	4	4	4	4	4	4			
OBS-18	1	18	18	18	6		2			
OBS-19	1									
OBS-20	2	15	15	15	15	15	15			
OBS-21	2	2	2	2	2	2	2			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-34
PUISSANCE VALUES AND FOG GRADES
SCIENCE OBSERVING OBJECTIVES
LEVELS ONE-SIX

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
OBS-22	2	2	2	6	2	5	5			
OBS-23	2	4	4	4	6	6	4			
OBS-24	2	4	4	4	4	4	4			
OBS-25	2	12	12	4	12	12	12			
OBS-26	2	4	6	6	4	4	4			
OBS-27	2	2	2	2	2	2	2			
OBS-28	2	18	18	18	1	2	6			
OBS-29	2	12	12	12	8	4	8			
OBS-30	2	4	18	18	4	4	4			
OBS-31	3	5	15	15	5	5	5			
OBS-32	3	2	2	2	2	2	2			
OBS-33	3	2	2	2	2	2	2			
OBS-34	3	2	2	2	2	2	2			
OBS-35	3	2		2	2	2	2			
OBS-36	4	15	15	15	5	15	5			
OBS-37	4	4	12	12	4	4	4			
OBS-38	4	4	12	4	4	4	4			
OBS-39	4	2	6		2	2	2			
OBS-40	4	15	15	15	5	15	15			
OBS-41	5	2	2	2	2	2	2			
OBS-42	5	2	2	2	2	2	2			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-34
PUISSANCE VALUES AND FOG GRADES SCIENCE OBSERVING OBJECTIVES LEVELS ONE-SIX

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
OBS-43	5	15	15	15	5	15	5			
OBS-44	6	15	15	15	5	5	5			
OBS-45	6	2	2	2	2	2	2			
OBS-46	6	6	15	15	5	5	5			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-35
PUISSANCE VALUES AND FOG GRADES
SCIENCE USING SPACE/TIME RELATIONSHIPS OBJECTIVES
LEVELS TWO-FIVE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
UST-1	2	3	3	3	3	3	3			
UST-2	2	6	6	6	2	2	2			
UST-3	2	2	2	2	2	2	2			
UST-4	2	2	2	2	2	2	2			
UST-5	2	2	2	2	2	2	2			
UST-6	3	3	3	3	3	3	3			
UST-7	3	15	15	15	5	5	5			
UST-8	3	9	9	9	9	9	9			
UST-9	3	9	9	9	3	3	9			
UST-10	4	9	9	9	3	9	9			
UST-11	4	3	3	9	3	3	3			
UST-12	4	2	2	2	2	2	2			
UST-13	4	2	2	2	2	2	2			
UST-14	4	2	2	2	2	2	2			
UST-15	5	6	6	6	6	6	2			
UST-16	5	9	9	9	3	3	3			
UST-17	5	15	15	15	5	5	5			
UST-18	5	9	9	9	3	3	3			
UST-19	5	9	3	9	9	9	9			
UST-20	5	15	15	15	15	5	5			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-35
PUISSANCE VALUES AND FOG GRADES
SCIENCE USING SPACE/TIME RELATIONSHIPS OBJECTIVES
LEVELS TWO-FIVE

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
UST-21	5	9	9	9	9	9	3			
UST-22	5	15	15	15	5	5	5			
UST-23	5	12	12	12	4	4	4			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-36
PUISSANCE VALUES AND FOG GRADES
SCIENCE CLASSIFYING OBJECTIVES
LEVELS SEVEN-EIGHT

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CL-1	7	6	6	6	6	6	6			
CL-2	7	4	6	4	4	4	9			
CL-3	7	12	12	5	15	15	15			
CL-4	7	4	4	15	4	4	4			
CL-5	7	15	15	15	5	5	15			
CL-6	7	4	6	4	2	6	2			
CL-7	7	12	12	12	2	2	4			
CL-8	7	15	15	10	4	2	2			
CL-9	7	18	18	18	18	18	18			
CL-10	7	4		2	6	6	2			
CL-11	7	4	8	12	2	2	2			
CL-12	7	6	2	18	2	2	2			
CL-13	7	2	18	4	4	2	2			
CL-14	7	12	6	18	18	6	6			
CL-15	7	4	12	2	2	2	2			
CL-16	7	12	4	6	4	6	2			
CL-17	8	4	4	6	6	6	6			
CL-18	8	4	18	4	2	2	2			
CL-19	8	4	4	6	2	2	2			
CL-20	8	4	4	12	2	2	2			
CL-21	8	4	4	18	2	2	2			
CL-22	8	4	4	18	2	2	2			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-37
PUISSANCE VALUES AND FOG GRADES
SCIENCE COMMUNICATING OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CO-1	7	2	12	6	2	2	2			
CO-2	7	2	12		2	2	2			
CO-3	7	3	18	15	15	18	9			
CO-4	7	8	18	8	8	8	8			
CO-5	7	12	12	12		12	12			
CO-6	7	15	15	10	8	8	8			
CO-7	7	15	15	15	15	15	15			
CO-8	7	15	15		5	6	6			
CO-9	7	18	18	18	18	18	18			
CO-10	7	18	18	12	12	12	12			
CO-11	7	18	18	18	18	18	18			
CO-12	7	18	18	18	18	18	18			
CO-13	7	12	12	12	12	12	12			
CO-14	7	12	18	12	12	12	12			
CO-15	7	2	2	6	2	2	2			
CO-16	7	2	18	6	2	2	4			
CO-17	7	6	6	6	2	2	2			
CO-18	7	6	6	6	6	6	18			
CO-19	7	6			6	2	6			
CO-20	7	12		12	4	4	4			
CO-21	7	12	18	18	6	18	12			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-37
PUISSANCE VALUES AND FOG GRADES
SCIENCE COMMUNICATING OBJECTIVES
LEVELS SEVEN-NINE

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CO-22	7	15			15	15	15			
CO-23	7	12	12	12	12	12	12			
CO-24	7	18	18	18	18	18	18			
CO-25	7	12			4	12	12			
CO-26	7	6	12	18	12	12	12			
CO-27	7	12	12	18	6	6	12			
CO-28	7	6	6	6	6	12	6			
Co-29	7	18	18		18	18	15			
CO-30	8	12	12	6	12	6	12			
CO-31	8	5	15	15	5	5	5			
CO-32	8	15	15	18	15	15	15			
CO-33	8	15	15	18	15	15	15			
CO-34	8	15	15	15	15	15	15			
CO-35	8	15	15	18	15	15	15			
CO-36	8	12	12	12	12	12	12			
CO-37	8	12	12	15	15	15	15			
CO-38	8	12	12	12	12	12	12			
CO-39	8	12	12	12	12	15	15			
CO-40	8	12	12	15	12	12	12			
CO-41	8	12	12	15	12	15	15			
CO-42	8	15	15	12	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-37
PUISSANCE VALUES AND FOG GRADES
SCIENCE COMMUNICATING OBJECTIVES
LEVELS SEVEN-NINE

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			L.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CO-43	8	12	12	12	12	12	4			
CO-44	8	12	12	12	6	12	12			
CO-45	8	15	15	15	15	15	15			
CO-46	8	12	12	12	12	12	12			
CO-47	8	12	12	12	12	12	12			
CO-48	8	15	15	12	15	15	12			
CO-49	8	15	15	15	15	15	15			
CO-50	8	12	12	15	12	15	15			
CO-51	8	15	15	15	15	15	15			
CO-52	9	15	6	12	15	6	12			
CO-53	9	15	15	15	15	15	15			
CO-54	9	6	5	6	1	15	5			
CO-55	9	4		15	4	2	2			
CO-56	9	18	18	18	18	18	18			
CO-57	9	2		6	2	2	2			
CO-58	9	5	15	15	5	5	5			
CO-59	9	6		6	6	6	6			
CO-60	9	9	12	2	12	15	15			
CO-61	9	18		12	5	5	18			
CO-62	9	18	18	18	6	6	15			
CO-63	9	9		4	9	9	9			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-37
PUISSANCE VALUES AND FOG GRADES
SCIENCE COMMUNICATING OBJECTIVES
LEVELS SEVEN-NINE

(continued)

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
CO-64	9	2	6	6	2	3	2			
CO-65	9	12	12	12	12	12	12			
CO-66	9	6		6	6	9	6			
CO-67	9	5		15	15	5	5			
CO-68	9	15	15	6	15	6	6			
CO-69	9	15	15	15	15	15	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-38
PUISSANCE VALUES AND FOG GRADES
SCIENCE EXPERIMENTING OBJECTIVES
LEVEL NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
EXP-1	9	15	15	15	15	15	15			
EXP-2	9	18	18	18	6	18	18			
EXP-3	9	15	15	15	15	15	15			
EXP-4	9	15	15		5	5	5			
EXP-5	9	15	18	18	1	15	15			
EXP-6	9	6	18	18	15	15	15			
EXP-7	9	15	15	15	15	15	15			
EXP-8	9	15	15	15	15	15	18			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-39
PUISSANCE VALUES AND FOG GRADES
SCIENCE FORMULATING HYPOTHESES OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
FHY-1	7	18	18	18	18	18	18			
FHY-2	8	18	15	18	18	18	18			
FHY-3	8	18	18	18	18	18	18			
FHY-4	8	18	18	18	18	18	18			
FHY-5	9	18	18	18	18	18	18			
FHY-6	9	18	18	18	18	18	18			
FHY-7	9	18	18	18	18	18	18			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-40
PUISSANCE VALUES AND FOG GRADES
SCIENCE IDENTIFYING VARIABLES OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
IDV-1	7	6	18	15	6	6	6			
IDV-2	7	6	6	15	6	18	6			
IDV-3	7	6	6	6	6	6	6			
IDV-4	7	15		18	18	18	18			
IDV-5	7	12	15	18	15	15	5			
IDV-6	8	12	12	12	12	12	12			
IDV-7	8	15	15	15	15	15				
IDV-8	8	12	12	12	12	12	12			
IDV-9	8	15	15	15	15	15	15			
IDV-10	9	15	15	2	2	2	5			
IDV-11	9	15	12	12	2	15	4			
IDV-12	9	15	15	15	15	15	15			
IDV-13	9	15	15	15	15	15	15			
IDV-14	9	15	15	15	5	5	15			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-41
PUISSANCE VALUES AND FOG GRADES
SCIENCE INTERPRETING DATA OBJECTIVES
LEVELS SEVEN-NINE

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
ITD-1	7	18	18	18	18	18	18			
ITD-2	7	18	18	18	18	18	18			
ITD-3	7	15	18	18	15	4	12			
ITD-4	7	15	5	5	15	15	15			
ITD-5	7	6	6	18	6	6	6			
ITD-6	7	9	9	15		18	15			
ITD-7	7	15	15	15		15	15			
ITD-8	7	15	18	18	18	18	18			
ITD-9	7	15		15	15	15	15			
ITD-10	7	12	12	12	12	12	12			
ITD-11	8	18	18	18	18	18	18			
ITD-12	8	18	18	15	18	18	18			
ITD-13	8	12	6	18	2	2	4			
ITD-14	8	4	4	6	2	2	4			
ITD-15	9	18	18	18	18	18	18			
ITD-16	9	18	18	18	18	18	18			
ITD-17	9	18	18	18	18	18	18			
ITD-18	9	18	18	18	18	18	18			
ITD-19	9	6	6	18	18	18	6			
ITD-20	9	18	18	18	18	18	18			
ITD-21	9	15	18	15	15	15	12			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

TABLE E-42
PUISSANCE VALUES AND FOG GRADES
SCIENCE MEASURING OBJECTIVES
LEVELS SEVEN-EIGHT

Objective		Puissance (Value) Level						FOG Grade for A.T.		
			I.A.		A.T.					
Number	Level	B.O.	1	2	1	2	3	1	2	3
ME-1	7	15	15	15	15	15	15			
ME-2	7	15	15	15	15	15	15			
ME-3	7	15	15	15	15	15	15			
ME-4	7	15	15	15	15	15	15			
ME-5	8	15	15	15	15	15	15			
ME-6	8	15	15	15	15	15	15			
ME-7	8	15	15	15	18	18	18			
ME-8	8	15	15	15	15	15	15			
ME-9	8	15	15	15	18	18	18			
ME-10	8	15	15	15	15	15	15			
ME-11	8	15	18	18	18	18	18			
ME-12	8	18	18	18	15	15	15			
ME-13	8	18	18	18	18	18	18			

Note: A value or grade was not computed for objectives where the Puissance Index or FOG Test was not applicable.

APPENDIX F

TABLE F-1

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 1									
reas Rated	Objective	L-3	LT-4	GU-2	GU-4	GU-6	SS-5	SS-6	SS-7	SP-4	P-2
ppropriateness											
B.O		X	X				X	X	X		
I.A. 1			X		X				X		
I.A. 2		X	X	X			X	X	X	X	
A.T. 1		X	X	X					X		
A.T. 2		X	X	X				X	X	X	
A.T. 3		X	X					X	X	X	
larity											
B.O.		X	X				X	X	X		
I.A. 1			X	X					X		X
I.A. 2			X	X				X	X		
A.T. 1		X	X	X					X		X
A.T. 2			X	X				X	X		
A.T. 3			X	X	X			X	X		
ffectiveness		X		X	X	X	X	X			
tudent Interest			X				X		X		
tudent Attention			X	X			X		X	X	
tudent Attitude			X				X		X	X	
eacher Attitude							X		X	X	

"X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 1 (Cont.)		Level 2							
reas Rated	Objective	L-5	SP-5	LT-5	LT-6	L-6	L-7	SP-6	SP-7	GU-10	GU-11
ppropriateness											
	B.O	X	X	X	X	X	X	X	X	X	X
	I.A. 1	X		X	X			X	X		
	I.A. 2	X	X	X	X			X	X		
	A.T. 1	X	X	X	X	X		X	X		
	A.T. 2	X		X	X	X		X	X		
	A.T. 3	X		X	X	X		X	X		
larity											
	B.O.	X	X	X	X	X	X	X	X	X	X
	I.A. 1	X	X	X	X				X		
	I.A. 2	X	X	X	X				X		
	A.T. 1	X		X	X				X		
	A.T. 2	X	X	X	X				X		
	A.T. 3	X		X	X				X		
ffectiveness				X	X	X			X	X	X
tudent Interest		X		X	X	X		X			
tudent Attention		X		X	X	X		X			
tudent Attitude		X		X	X						
eacher Attitude		X		X	X						

"X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 2 (Cont.)							Level 3	
reas Rated	Objective	GU-13	SS-10	SS-11	C-3	P-7	P-8	P-10	SS-13	SS-14
ppropriateness										
B.O			X							
I.A. 1										
I.A. 2										
A.T. 1		X		X						
A.T. 2		X					X	X		
A.T. 3		X		X			X	X		X
larity										
B.O.		X		X						
I.A. 1		X	X							
I.A. 2		X	X							
A.T. 1		X		X						
A.T. 2		X				X		X		
A.T. 3		X		X			X	X		
ffectiveness				X						
tudent Interest		X								
tudent Attention			X	X						
tudent Attitude										
eacher Attitude		X								

"X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 3 (Cont.)		Level 4					Level 5	
reas Rated	Objective	SS-15	SS-16	L-9	SP-11	CW-4	GU-26	SS-20	L-10	ST-6
ppropriateness										
B.O				X	X	X				X
I.A. 1				X	X	X				X
I.A. 2				X	X	X				X
A.T. 1				X	X	X				X
A.T. 2				X	X	X				X
A.T. 3				X	X	X		X		X
larity										
B.O.				X	X	X				X
I.A. 1				X	X	X	X			X
I.A. 2				X	X	X	X			X
A.T. 1				X	X	X				X
A.T. 2				X	X	X	X			X
A.T. 3			X	X	X	X		X		X
ffectiveness				X	X	X			X	X
tudent Interest				X	X					
tudent Attention				X	X	X				
tudent Attitude				X	X	X				
eacher Attitude				X	X					

"X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 5 (Cont.)		Level 6						
reas Rated	Objective	ST-7	SP-14	L-12	L-13	L-14	L-16	LT-20	LT-21	GU-52
ppropriateness										
B.O		X					X	X		X
I.A. 1										
I.A. 2								X		
A.T. 1								X		
A.T. 2								X		
A.T. 3								X		
larity										
B.O.							X			X
I.A. 1								X		
I.A. 2										
A.T. 1								X		
A.T. 2								X		
A.T. 3								X		
ffectiveness		X				X		X	X	X
tudent Interest								X		
tudent Attention								X		
tudent Attitude								X		X
eacher Attitude										

"X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 6 (Cont.)			Level 7						
reas Rated	Objective	GU-53	ST-8	SS-33	C-1	C-2	C-3	C-4	C-5	C-6	POS-1
ppropriateness											
B.O		X	X								X
I.A. 1											X
I.A. 2											X
A.T. 1											X
A.T. 2											X
A.T. 3											X
larity											
B.O.		X	X								X
I.A. 1											X
I.A. 2											X
A.T. 1											X
A.T. 2											
A.T. 3											X
ffectiveness		X	X								
tudent Interest											
tudent Attention											
tudent Attitude											
eacher Attitude											

"X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 7 (Cont.)								Level 8	
reas Rated	Objective	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	NF-1	NF-2	S-5	S-6
ppropriateness											
	B.O	X									
	I.A. 1	X		X							
	I.A. 2	X		X							
	A.T. 1	X		X					X		
	A.T. 2	X		X					X		
	A.T. 3	X	X	X					X		
larity											
	B.O.	X	X		X	X					
	I.A. 1	X	X		X	X		X			
	I.A. 2	X	X		X	X			X		
	A.T. 1	X	X		X	X			X		
	A.T. 2	X	X		X	X			X		
	A.T. 3	X	X		X	X			X		
ffectiveness		X	X	X					X		
tudent Interest		X	X	X					X	X	
tudent Attention		X		X					X	X	
tudent Attitude		X		X					X	X	
eacher Attitude		X						X	X		

* "X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 8 (Cont.)								
reas Rated	Objective	S-7	S-8	POS-6	POS-7	POS-9	POS-10	POS-11	LSS-4	LSS-6
ppropriateness										
B.O					X			X	X	
I.A. 1					X			X	X	
I.A. 2					X			X		
A.T. 1					X			X		
A.T. 2					X			X		
A.T. 3					X			X	X	
larity										
B.O.					X			X		
I.A. 1					X			X	X	
I.A. 2					X			X		
A.T. 1					X	X	X	X		
A.T. 2					X		X	X		
A.T. 3					X			X	X	
ffectiveness		X					X	X		
tudent Interest		X	X	X		X	X	X		
tudent Attention		X	X	X		X	X	X		
tudent Attitude		X	X	X	X	X	X	X		
eacher Attitude				X				X		

"X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 9								
reas Rated	Objective	S-9	S-10	S-11	SV-10	SV-11	SV-12	P-8	SS-18	M-7
ppropriateness										
	B.O			X	X					
	I.A. 1	X		X	X					
	I.A. 2	X		X						
	A.T. 1	X		X						
	A.T. 2	X		X				X		
	A.T. 3	X		X				X		
larity										
	B.O.	X	X	X	X				X	
	I.A. 1			X	X				X	
	I.A. 2			X	X				X	
	A.T. 1			X	X				X	
	A.T. 2			X	X				X	
	A.T. 3			X	X				X	
ffectiveness		X	X		X			X	X	
tudent Interest				X	X					
tudent Attention				X	X					
tudent Attitude				X	X					X
eacher Attitude				X						

"X" indicates a low rating.

TABLE F-1 (Continued)

TEACHER RATINGS* OF THE LANGUAGE ARTS/ENGLISH OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 9 (Cont.)		
reas Rated	Objective	D-3	D-4	D-5
ppropriateness				
	B.O			
	I.A. 1			
	I.A. 2			
	A.T. 1			
	A.T. 2			
	A.T. 3			
larity				
	B.O.			
	I.A. 1			
	I.A. 2			
	A.T. 1			
	A.T. 2			
	A.T. 3			
ffectiveness				
tudent Interest				
tudent Attention				
tudent Attitude				
eacher Attitude				

"X" indicates a low rating.

TABLE F-2

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 1								
reas Rated	Objective	OBS-1	OBS-2	OBS-3	OBS-4	OBS-5	OBS-6	CL-1	CL-2	ME-1
ppropriateness										
B.O.										
I.A. 1										
I.A. 2										
A.T. 1										
A.T. 2										
A.T. 3										
larity										
B.O.										
I.A. 1										
I.A. 2										
A.T. 1										
A.T. 2										
A.T. 3										
ffectiveness										
tudent Interest										
tudent Attention										
tudent Attitude										
eacher Attitude										

"X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 1 (Cont.)				Level 2				
reas Rated	Objective	ME-3	OBS-15	OBS-16	OBS-9	UST-1	UST-2	UST-4	UST-5	ME-5
ppropriateness										
B.O.						X	X	X	X	X
I.A. 1									X	
I.A. 2									X	
A.T. 1									X	
A.T. 2						X			X	
A.T. 3						X			X	
larity										
B.O.						X	X		X	X
I.A. 1									X	
I.A. 2									X	
A.T. 1									X	
A.T. 2						X			X	
A.T. 3						X			X	
ffectiveness					X	X	X	X	X	
tudent Interest										
tudent Attention									X	
tudent Attitude									X	
eacher Attitude									X	

"X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 2 (Cont.)							
reas Rated	Objective	ME-6	ME-7	ME-8	OBS-20	OBS-21	OBS-22	OBS-25	OBS-27
ppropriateness									
B.O.						X		X	X
I.A. 1									
I.A. 2									
A.T. 1									
A.T. 2									
A.T. 3									
larity									
B.O.						X		X	X
I.A. 1									
I.A. 2									
A.T. 1									
A.T. 2							X		
A.T. 3									
ffectiveness						X		X	X
tudent Interest									
tudent Attention									
tudent Attitude									
eacher Attitude									

* "X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 3							
reas Rated	Objective	UST-6	UST-7	INP-5	ME-11	ME-14	UST-8	UST-9	OBS-32
ppropriateness									
B.O.		X	X	X	X				
I.A. 1		X	X	X	X				
I.A. 2		X	X	X	X				X
A.T. 1		X	X	X	X			X	X
A.T. 2		X	X	X	X			X	X
A.T. 3		X	X	X	X			X	X
larity									
B.O.		X	X	X	X				
I.A. 1		X	X	X	X		X	X	
I.A. 2		X	X	X	X			X	X
A.T. 1		X	X	X	X				X
A.T. 2		X	X	X	X				X
A.T. 3		X	X	X	X				X
ffectiveness		X							
tudent Interest		X	X	X	X				
tudent Attention		X	X	X	X			X	
tudent Attitude		X	X	X	X				
eacher Attitude		X	X	X	X			X	

* "X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 3 (Cont.)			Level 4					
eas Rated	Objective	OBS-33	OBS-34	CO-1	CO-5	CO-6	CL-8	OBS-37	OBS-38	INP-9
ppropriateness										
B.O.					X	X		X		
I.A. 1					X			X		
I.A. 2		X			X			X		
A.T. 1		X			X	X		X		
A.T. 2		X			X		X	X		
A.T. 3					X	X	X	X		
arity										
B.O.					X	X	X	X		
I.A. 1					X			X		
I.A. 2		X			X			X		
A.T. 1		X	X		X		X	X		
A.T. 2		X	X		X		X	X		
A.T. 3			X		X	X	X	X		
fectiveness		X			X	X	X	X		
udent Interest										
udent Attention										
udent Attitude										
acher Attitude										

"X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 4 (Cont.)								
reas Rated	Objective	CL-9	CL-10	CO-4	CL-11	ME-15	ME-16	ME-17	ME-18	ME-19
ppropriateness										
B.O.										
I.A. 1		X								
I.A. 2		X								
A.T. 1										
A.T. 2										
A.T. 3		X								
larity										
B.O.					X					
I.A. 1					X					
I.A. 2					X		X			
A.T. 1										
A.T. 2										
A.T. 3		X								
ffectiveness		X			X	X	X	X		
tudent Interest										
tudent Attention										
tudent Attitude										
eacher Attitude										

* "X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 4 (Cont.)							
reas Rated	Objective	ME-20	UST-10	UST-11	UST-12	UST-13	UST-14	OBS-36	INP-8
ppropriateness									
B.O.		X							
I.A. 1		X							
I.A. 2		X							
A.T. 1		X							
A.T. 2		X							
A.T. 3		X							
larity									
B.O.									
I.A. 1									
I.A. 2		X							
A.T. 1									
A.T. 2		X							
A.T. 3		X							
ffectiveness		X						X	
tudent Interest									
tudent Attention									
tudent Attitude									
eacher Attitude									

"X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 4 (Cont.)				Level 5			
reas Rated	Objective	CO-3	INP-7	INP-11	OBS-39	OBS-43	UST-17	UST-19	OBS-41
ppropriateness									
B.O.		X						X	
I.A. 1		X						X	
I.A. 2		X						X	
A.T. 1		X							
A.T. 2		X							
A.T. 3		X							
larity									
B.O.								X	
I.A. 1		X						X	
I.A. 2		X						X	
A.T. 1		X						X	
A.T. 2		X						X	
A.T. 3		X						X	
ffectiveness		X							
tudent Interest									
tudent Attention								X	
tudent Attitude								X	
eacher Attitude								X	

* "X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 6						Level 7		
reas Rated	Objective	CO-11	CO-12	CO-16	CO-13	CO-15	CO-18	CO-1	CO-3	FHY-1
ppropriateness										
B.O.		X	X			X	X		X	X
I.A. 1		X	X			X	X			
I.A. 2		X	X		X		X			X
A.T. 1		X	X		X	X	X			
A.T. 2		X	X		X	X	X			
A.T. 3		X	X		X	X	X			
larity										
B.O.		X	X		X	X	X	X	X	X
I.A. 1		X	X			X	X	X		
I.A. 2		X	X			X	X	X		
A.T. 1		X	X		X		X	X		
A.T. 2		X	X	X	X	X	X	X		
A.T. 3		X	X		X	X	X	X		
ffectiveness		X	X			X	X		X	
tudent Interest		X	X		X	X	X			
tudent Attention		X	X		X	X	X			
tudent Attitude		X	X		X	X	X			
eacher Attitude		X	X		X	X	X			

"X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 7 (Cont.)								
reas Rated	Objective	IDV-1	IDV-2	IDV-3	CO-4	CO-5	ITD-1	CL-1	ME-1	CO-6
ppropriateness										
B.O.			X	X	X	X	X	X	X	
I.A. 1						X				
I.A. 2		X				X				
A.T. 1						X				
A.T. 2						X				
A.T. 3						X				
larity										
B.O.		X	X	X	X		X	X	X	X
I.A. 1						X		X		
I.A. 2						X		X		
A.T. 1						X				
A.T. 2						X				
A.T. 3						X				
ffectiveness		X		X	X	X	X			
tudent Interest						X				
tudent Attention						X				
tudent Attitude						X				
eacher Attitude						X				

* "X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 7 (Cont.)										
reas Rated	Objective	ME-2	ME-3	ITD-2	ITD-3	CL-2	CL-3	CL-4	ITD-4	CO-7	CO-8	ME-4
ppropriateness												
B.O.		X				X	X	X				
I.A. 1												
I.A. 2				X								
A.T. 1												
A.T. 2												
A.T. 3												
larity												
B.O.		X	X			X	X					
I.A. 1												
I.A. 2				X								
A.T. 1												
A.T. 2												
A.T. 3												
ffectiveness			X	X		X	X		X			
tudent Interest												
tudent Attention												
tudent Attitude												
eacher Attitude												

"X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 8							
reas Rated	Objective	CO-30	CO-31	ME-7	ME-5	ME-6	ME-8	IDV-6	ITD-11
ppropriateness									
B.O.		X	X	X			X		
I.A. 1		X	X				X		
I.A. 2		X	X				X		
A.T. 1		X					X		
A.T. 2		X					X		
A.T. 3		X					X		
larity									
B.O.		X	X	X		X	X	X	
I.A. 1		X	X	X	X	X	X	X	
I.A. 2		X	X	X	X		X	X	
A.T. 1		X	X	X	X		X	X	
A.T. 2		X	X	X	X		X	X	
A.T. 3		X	X	X	X		X	X	
ffectiveness		X	X	X	X		X	X	
tudent Interest		X	X	X	X		X	X	
tudent Attention		X	X	X	X	X	X	X	
tudent Attitude		X	X	X	X	X	X	X	
eacher Attitude		X	X				X	X	

* "X" indicates a low rating.

TABLE F-2 (Continued)

TEACHER RATINGS* OF THE SCIENCE OBJECTIVES NOT MASTERED BY AT LEAST EIGHTY-FIVE PERCENT OF THE STUDENTS AND/OR ARE IN NEED OF REVISION BASED ON THE HLD RATIOS BY LEVEL

		Level 8 (Cont.)				Level 9			
reas Rated	Objective	CO-34	CO-35	CO-44	ME-13	FHY-5	EXP-1	ITD-15	EXP-2
ppropriateness									
B.O.		X				X	X	X	
I.A. 1						X	X	X	X
I.A. 2						X	X	X	X
A.T. 1		X				X	X	X	X
A.T. 2		X				X	X	X	X
A.T. 3		X				X	X	X	X
larity									
B.O.		X				X		X	
I.A. 1		X				X	X	X	X
I.A. 2		X				X	X	X	X
A.T. 1		X				X	X	X	X
A.T. 2		X				X	X	X	X
A.T. 3		X				X	X	X	X
ffectiveness		X							
tudent Interest		X				X	X		X
tudent Attention		X				X	X		X
tudent Attitude		X	X			X	X		X
eacher Attitude						X	X		

* "X" indicates a low rating.

APPENDIX G

TABLE G-1

TOTAL AVERAGE TIME TEACHERS DEVOTED TO LANGUAGE ARTS/ENGLISH OBJECTIVES BY LEVEL 1/

Objective Taught	Number of Hours
Level 1	
L-3	3.8
LT-3	7.1
LT-4	5.2
GU-1	5.9
GU-2	8.0
GU-3	4.2
GU-4	4.2
GU-5	5.3
GU-6	5.0
SS-5	6.9
SS-6	5.8
SS-7	6.8
L-4	3.9
SP-4	8.5
P-2	4.2
L-5	4.1
SP-5	7.5
Level 2	
LT-5	7.1
LT-6	5.2
L-6	4.2
L-7	3.8
SP-6	5.0
SP-7	4.3
GU-10	3.7
GU-11	3.8
GU-12	3.5
GU-13	3.5
SS-10	4.5
SS-11	5.0
Level 2 (Cont.)	
C-3	4.2
P-5	3.5
P-6	3.5
P-7	3.5
P-8	4.5
P-10	4.5
SS-9	7.1
Level 3	
L-8	5.0
SS-12	4.6
SP-8	7.8
SP-9	7.1
GU-17	3.8
GU-18	3.5
C-6	4.2
SP-10	5.2
GU-19	3.8
SS-13	3.8
SS-14	5.5
SS-15	5.5
SS-16	5.8
Level 4	
L-9	5.6
SP-11	3.1
CW-4	4.9
GU-26	5.4
SS-20	7.8
C-11	6.5
GU-27	9.8
GU-28	8.1

TABLE G-1 (Continued)

TOTAL AVERAGE TIME TEACHERS DEVOTED TO LANGUAGE ARTS/ENGLISH OBJECTIVES BY LEVEL[1]

Objective Taught	Number of Hours
Level 4 (Cont.)	
GU-29	8.1
GU-31	7.8
Level 5	
L-10	5.4
ST-6	6.3
ST-7	7.1
LT-15	5.6
LT-16	4.5
SP-13	5.5
SP-14	5.8
L-11	4.2
GU-32	3.8
GU-33	3.8
SS-25	5.1
SS-26	6.8
SS-27	5.5
SS-28	4.5
SS-29	5.2
Level 6	
L-12	4.0
L-13	3.9
L-14	4.4
L-15	4.8
L-16	17.3
LT-20	6.0
LT-21	5.1
GU-49	4.5
GU-50	4.6
GU-51	4.3
GU-52	4.8
GU-53	4.7
Level 6 (Cont.)	
ST-8	4.5
ST-9	6.5
SS-33	8.1
LT-22	3.5
Level 7	
POS-1	13.6
SS-1	9.6
SS-2	9.3
SS-3	6.0
SS-4	13.6
SS-5	8.1
SS-6	4.8
NF-1	4.6
NF-2	6.1
Level 8	
L-4	20.5
SP-5	23.9
S-7	6.1
S-8	6.1
POS-6	4.2
POS-7	6.8
POS-8	8.0
POS-9	4.8
POS-10	4.6
POS-11	3.8
LSS-3	4.3
LSS-4	12.0
LSS-6	3.0
Level 9	
S-9	7.0
S-10	7.3

TABLE G-1 (Continued)

TOTAL AVERAGE TIME TEACHERS DEVOTED TO LANGUAGE ARTS/ENGLISH OBJECTIVES BY LEVEL[1/]

Objective Taught	Number of Hours
Level 9 (Cont.)	
S-11	6.4
SV-10	7.7
SV-11	7.2
SV-12	10.2
P-8	9.9
SS-18	14.1
M-5	5.2

[1/] Time was not reported for all objectives taught.

TABLE G-2

TOTAL AVERAGE TIME TEACHERS DEVOTED TO SCIENCE OBJECTIVES BY LEVEL [1]

Objective Taught	Number of Hours
Level 1	
OBS-1	5.1
OBS-2	5.3
OBS-3	3.7
OBS-4	4.1
OBS-5	4.5
OBS-6	4.6
OBS-7	5.1
CL-1	3.8
CL-2	3.5
ME-1	4.7
ME-3	3.5
OBS-15	3.5
OBS-16	6.8
OBS-17	3.8
OBS-18	4.8
OBS-19	5.5
ME-4	3.5
OBS-8	5.5
OBS-9	2.2
OBS-10	7.4
OBS-11	2.8
OBS-12	4.2
OBS-13	4.3
OBS-14	4.5
CL-3	3.8
Level 2	
UST-1	5.6
UST-2	5.4
UST-3	4.8
UST-4	5.8
UST-5	5.5
Level 2 (Cont.)	
ME-5	6.9
ME-6	3.8
ME-7	3.5
ME-8	5.2
OBS-20	3.8
OBS-21	5.7
CL-4	4.5
OBS-22	3.5
OBS-23	4.2
OBS-24	4.2
OBS-25	4.2
OBS-26	3.8
CL-5	5.2
OBS-27	4.5
OBS-28	4.3
OBS-29	13.6
OBS-30	3.5
Level 3	
UST-6	6.7
UST-7	6.4
INP-5	9.1
ME-11	11.5
OBS-31	4.8
ME-14	4.8
UST-8	11.7
UST-9	8.1
OBS-32	4.0
OBS-33	4.5
OBS-34	7.9
CO-2	6.5
CO-1	4.2

TABLE G-2 (Continued)

TOTAL AVERAGE TIME TEACHERS DEVOTED TO SCIENCE OBJECTIVES BY LEVEL [1/]

Objective Taught	Number of Hours
Level 4	
CO-5	7.1
CO-6	8.2
CL-8	5.7
OBS-37	5.3
OBS-38	4.2
CL-9	4.5
CL-10	4.2
CO-4	4.8
CL-12	3.8
ME-15	3.7
ME-16	4.8
ME-17	2.0
ME-18	3.5
ME-19	3.5
ME-20	3.5
UST-10	3.5
UST-11	3.5
UST-12	3.5
UST-13	3.5
UST-14	3.5
OBS-36	4.1
CO-3	3.5
OBS-39	3.8
Level 5	
OBS-43	3.5
CO-9	4.8
UST-15	6.2
UST-16	11.7
UST-17	8.1
UST-18	4.8
Level 5 (Cont.)	
UST-19	6.1
OBS-41	5.2
OBS-42	5.2
Level 6	
CO-11	5.9
CO-12	6.7
CO-16	5.3
CO-14	3.8
CO-13	4.4
CO-15	8.7
CO-18	7.8
CO-20	3.5
UST-23	5.8
Level 7	
CO-1	6.8
CO-2	6.6
CO-3	5.3
FHY-1	4.9
IDV-1	5.0
IDV-2	5.3
IDV-3	4.5
CO-4	4.8
CO-5	3.9
ITD-1	5.3
CL-1	5.0
ME-1	4.5
CO-6	3.5
ME-2	6.8
ME-3	5.1
ITD-2	3.8

TABLE G-2 (Continued)

TOTAL AVERAGE TIME TEACHERS DEVOTED TO SCIENCE OBJECTIVES BY LEVEL [1/]

Objective Taught	Number of Hours
Level 7 (cont.)	
ITD-3	3.5
CL-2	4.6
CL-3	4.1
CL-4	4.3
CL-5	3.5
ITD-4	5.1
CO-7	8.1
CO-8	5.2
ME-4	7.8
CL-6	4.8
Level 8	
CO-30	10.3
CO-31	12.4
ME-7	9.6
ME-5	13.3
ME-6	12.0
ME-8	12.7
IDV-6	12.5
Level 8 (Cont.)	
ITD-11	6.6
CO-33	6.2
CO-34	4.7
CO-35	5.5
Level 9	
FHY-5	6.2
EXP-1	5.5
CO-53	8.1
ITD-15	7.8
CO-55	8.1
FHY-6	6.5
ITD-16	6.4
FHY-7	5.4
CO-57	6.1
CO-58	8.1
EXP-2	8.1

[1/] Time was not reported for all objectives taught.

APPENDIX H

TABLE H-1
LANGUAGE ARTS/ENGLISH

COMPETENCY AREA: WRITING

GRADE: 3
ENABLER: X TERMINAL: ____
NO: 1

CATEGORY: CREATIVE WRITING

OBJECTIVE: Given sentences and words, the student will demonstrate the use of multiple meaning and descriptive words with 100% accuracy.

MATERIALS NEEDED: A box of crayon, a book, a ball, a piece of cotton (Sample Objects)

INSTRUCTIONAL ACTIVITIES

1. Discuss with the student the idea that some words have more than one meaning.
   Present the word saw and discuss the different meanings of the word.

   Example:

   a. Jane saw a log.
   b. Jack will saw the log.

   Direct the student to write two sentences for each of the multiple meaning words listed below:

   a. chest
   b. bed
   c. orange
   d. leg
   e. match

   Have the students share their completed work with their classmates.
   Discuss the student's responses.

2. Develop the concept of descriptive words with the student.
   Elicit from the student that descriptive words are words that describe or tell something about a person, an object, or an event.
   Present several objects and have the student give three words to describe the objects.

BEHAVIORAL
OBJECTIVE NO. 1

COMPETENCY AREA: WRITING
CATEGORY: CREATIVE WRITING
GRADE: 3

Sample Items:

a. a box of crayon
b. a book
c. a ball
d. a piece of cotton

Discuss the student's responses.

ASSESSMENT TASKS

1. Read the sentences below.
Explain orally the meaning of each underlined word.

a. Here is a pitcher of water.
b. The pitcher threw a curve ball.
c. Put the ball in the trunk.
d. The elephant has a long trunk.
e. My ink pen is blue.
f. The pig ran into his pen.
g. Your sock has a big hole.
h. The man gave the bear a hard sock on his ear.

2. Write two words to describe each of the words below.

a. perfume
b. pickle
c. rose
d. clown
e. elephant
f. lion
g. snake
h. castle

3. Write two sentences for each word below.
Show the different meanings for each word.

a. palm
b. ruler
c. foot
d. stand

Write two words to describe each of the words below.

a. sailboat
b. fish
c. doll
d. truck

TABLE H-2
SCIENCE

OBSERVING

LEVEL: INTERMEDIATE

OBJECTIVE:

OBS-35 After completing the activities, the student will be able to identify vertebrate and invertebrate animals.

ACTIVITIES:

1. Using film strips and/or motion pictures, introduce and define the terms vertebrate and invertebrate. Invertebrates are animals without backbones and vertebrates are animals with backbones.

2. Walk - Around

Take the class on a walk around the school area. Ask the students to point out any animals that they think are vertebrates. Keep a list of the animals pointed out. Discuss the list in class and reemphasize the characteristics of vertebrates.

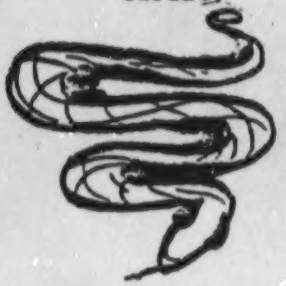
Repeat the Walk - Around at a later date. At this time ask the students to point out animals that they think are invertebrates. Discuss their characteristics.

3. Have the students make a booklet into which magazine pictures of vertebrates and invertebrates will be pasted.

TABLE H-2 Continued

ASSESSMENT TASKS:

1.) Identify the vertebrates below by shading in the correct circle.



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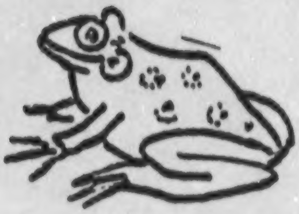

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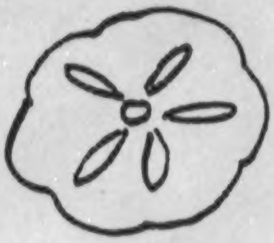
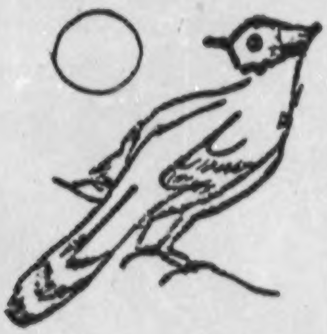


○

2.) Identify the invertebrates below by shading in the correct circle.

○



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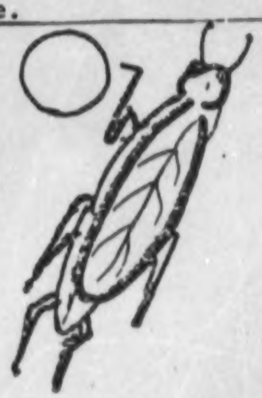

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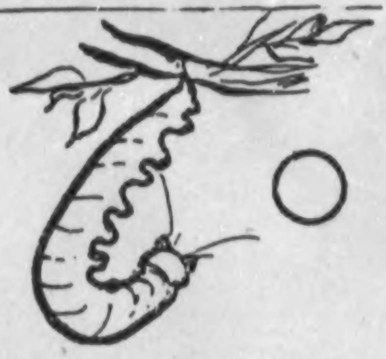

3.) Identify vertebrates and invertebrates by correctly printing I in the box next to an invertebrate and V in the box next to a vertebrate.

1. butterfly ☐
2. snake ☐
3. frog ☐
4. grasshopper ☐
5. boy ☐

APPENDIX I

VALIDATION REPORT GLOSSARY

This glossary presents the meanings of terms relative to the Competency-Based Curriculum as they are used in this report.

Adequacy Ratio	- A ratio which tests the implication that acquisition of all subordinate behaviors implies, after instruction, acquisition of the terminal behavior. The adequacy ratio is the ratio of all students who correctly answer both the subordinate and terminal behaviors to the total number of students answering all subordinate behavior(s) correctly. Symbolically, it can be stated as $\frac{\text{freq. }(1,1)}{\text{freq. }(1,1) + \text{freq. }(0,1)}$ where the first number in the ordered pair indicates mastery (1) or nonmastery (0) of the terminal behavior and the second number indicates mastery or nonmastery of the subordinate behaviors.
Assessment Task (A.T.)	- Tasks students must complete successfully to demonstrate the acquisition of the competency called for in the behavioral objective.
Behavioral Objective (B.O.)	- A statement in terms of what new behavior the student will have mastered as a result of participating in the instructional activities.
Category	- A subdivision of a strand which identifies the content area in which a given skill (competency) is being used.
Competency	- The ability of an individual to perform a task at a required or specified level of proficiency.
Competency-Based Curriculum (CBC)	- An individualized sequential instructional program based on the use of behavioral objectives for which performance criteria have been established.

Completeness Ratio - A ratio which measures the strength of the hypothesis of learning dependency. This coefficient is the ratio of all students who correctly answer both the subordinate and terminal behaviors to the total number of students whose acquisition or nonacquisition of the subordinate behaviors determines the acquisition or nonacquisition of the terminal behavior. Symbolically it can be stated as

$$\frac{\text{freq. } (1,1)}{\text{freq. } (1,1) + \text{freq. } (0,0)}$$

where the first number in the ordered pair indicates mastery (1) or nonmastery (0) of the terminal behavior and the second number indicates mastery or nonmastery of the subordinate behaviors.

Component - An integral part of a larger entity or system which functions independently, but which exists to aid the larger system in achieving its goals and objectives.

Consistency Ratio - A ratio which tests the implication that acquisition of the terminal behavior implies acquisition of all subordinate behaviors. The consistency ratio is the ratio of all students who correctly answered both the subordinate and terminal behaviors to the total number of students answering the terminal behavior correctly. Symbolically, it can be stated as

$$\frac{\text{freq. } (1,1)}{\text{freq. } (1,1) + \text{freq. } (1,0)}$$

where the first number in the ordered pair indicates mastery (1) or nonmastery (0) of the terminal behavior and the second number indicates mastery or nonmastery of the subordinate behaviors.

Continuum	- An orderly, planned sequence of learning experiences, Pre-K through 12, planned for and participated in by a learner or group of learners, which is intended to lead to the acquisition of a predetermined list of competencies arranged to reflect increasingly more complex skills.
Criterion	- A standard of performance.
FOG	- A readability formula for determining the reading complexity level of curriculum materials.
Hierarchy	- An arrangement of behavioral objectives from simple to complex, which, when mastered in sequence, leads to the mastery of a specific skill.
Hypothesis of Learning Dependency (HLD)	- A prediction of the dependent relationship of a terminal objective to its subordinate objective(s).
Instructional Activity (I.A.)	- An activity provided to enable the student to gain competency called for in the behavioral objective.
Instructional Triad	- An arrangement of one behavioral objective, two instructional activities, and three assessment tasks with performance agreement among all three components.
Mastery	- The ability to demonstrate a specific skill at or above a previously established criterion level.
Objective Code	- An eleven digit alphanumeric code developed to identify objectives by curriculum area, strand, category, and number.
Percent of Acquisition	- A percentage of students in the validation study who demonstrated mastery of a specific objective by successfully completing all three assessment tasks.
Performance Criteria	- A minimal standard of performance a student must meet in order to demonstrate acceptable competence or mastery.
Puissance Index	- A power structure test to determine the difficulty level of each component of an instructional triad.

Rationale	- An explanation of the underlying and controlling principles of belief which determine, and consequently reflect, the curriculum of the school system.
Skills	- Competencies acquired by observation, study or experience in mental, emotional, and/or physical performance which are required for the mastery of school work or other activity.
Strand	- A sequence of objectives in a given skill (competency).
Subordinate Objective	- A behavioral objective serving as a prerequisite to a more comprehensive behavioral (terminal) objective.
Terminal Objective	- The most comprehensive behavioral objective acquired after mastering the prerequisite objective(s).
Validation	- An independent verification of the compatibility and appropriateness of the instructional triads and learning hierarchies within the CBC approach.

APPENDIX J

TABLE J-1
LANGUAGE ARTS/ENGLISH OBJECTIVES VALIDATED WITH STUDENTS ON A DIFFERENT GRADE LEVEL

Objectives			Student		
Level	Number	Code	Grade	# Attempted	% Mastered
Prek/K	SP-1	LAEX030.0SPK	3/4	22	95%
1	GU-7	LAEW090.0GRA	3	27	81%
1	SS-8	LAEW100.1SEN	3	25	40%
1	C-1	LAEW030.1CAP	3	19	74%
1	C-2	LAEW040.1CAP	3	27	52%
2	SS-10	LAEW120.0SEN	3/4	17	82%
3	L-8	LAEX100.0LIS	3/4	20	80%
3	GU-17	LAEW190.0GRA	3/4	14	93%
3	GU-18	LAEW200.0GRA	3/4	15	93%
3	GU-19	LAEW210.0GRA	3/4	17	76%
3	GU-20	LAEW220.0GRA	3/4	16	88%
3	GU-22	LAEW240.0GRA	3/4	16	88%
3	SS-13	LAEW150.1SEN	4	22	100%
3	GU-23	LAEW250.0GRA	3/4	16	88%
3	SS-14	LAEW160.0SEN	4	22	95%
3	SS-15	LAEW170.1SEN	4	22	95%
4	L-9	LAEX110.0LIS	3/4	17	76%
4	C-11	LAEW130.1CAP	3/4	17	88%
4	SP-12	LAEX140.0SPK	3/4	18	72%
4	SS-21	LAEW230.1SEN	3/4	16	94%
4	LT-13	LAEX150.0LIT	5	18	44%
5	L-10	LAEX120.0LIS	4/5	14	100%

TABLE J-1 (Continued)
LANGUAGE ARTS/ENGLISH OBJECTIVES VALIDATED WITH STUDENTS ON A DIFFERENT GRADE LEVEL

Objectives			Student		
Level	Number	Code	Grade	# Attempted	% Mastered
5	ST-6	LAEX080.0STU	4/5	14	36%
5	L-11	LAEX130.0LIS	4/5	14	100%
			6	27	100%
7	P-1	ENSW030.0PUN	9	17	12%
7	P-2	ENSW040.1PUN	9	16	6%
7	C-1	ENSW030.1CAP	8	13	85%
7	C-2	ENSW040.0CAP	8	12	83%
			9	7	57%
7	C-3	ENSW050.1CAP	8	12	25%
			9	13	85%
7	C-4	ENSW060.0CAP	8	17	94%
			9	12	100%
7	C-5	ENSW070.0CAP	8	19	84%
			9	11	55%
7	C-6	ENSW080.0CAP	8	5	80%
7	POS-1	ENSW030.1POS	8	30	27%
			9	13	0%
7	POS-2	ENSW040.1POS	8	29	38%
			9	13	0%
7	POS-3	ENSW050.1POS	8	29	3%
			9	13	0%
7	SS-1	ENSW030.1SEN	8	4	100%

TABLE J-1 (Continued)
LANGUAGE ARTS/ENGLISH OBJECTIVES VALIDATED WITH STUDENTS ON A DIFFERENT GRADE LEVEL

Objectives			Student		
Level	Number	Code	Grade	# Attempted	% Mastered
7	SS-2	ENSW040.1SEN	8	8	88%
7	SS-3	ENSW050.1SEN	8	12	67%
7	SS-4	ENSW060.0SEN	8	5	100%
7	SS-5	ENSW070.0SEN	8	10	90%
7	POS-4	ENSW060.1POS	8	34	32%
			9	21	0%
7	POS-5	ENSW070.1POS	9	13	0%
8	P-3	ENSW050.1PUN	9	11	91%
8	P-4	ENSW060.1PUN	9	19	0%
8	POS-12	ENSW140.1POS	9	15	93%
8	SS-13	ENSW150.1SEN	9	8	88%
8	SS-15	ENSW170.0SEN	9	27	85%
8	SS-16	ENSW180.1SEN	9	27	81%
8	SS-17	ENSW190.1SEN	9	34	56%
8	PA-10	ENSW120.1PAR	9	14	71%

TABLE J-2
SCIENCE OBJECTIVES VALIDATED WITH STUDENTS ON A DIFFERENT GRADE LEVEL

Objectives			Student		
Level	Number	Code	Grade	# Attempted	% Mastered
2	UST-1	SCEX030.0UST	3	23	65%
2	UST-3	SCEX050.0UST	3	17	65%
2	OBS-29	SCEX310.1OBS	3	24	54%
3	UST-6	SCEX080.0UST	2	40	38%
3	UST-7	SCEX090.0UST	2	35	34%
			4	21	100%
3	UST-8	SCEX080.0UST	2	19	79%
3	UST-9	SCEX110.0UST	2	20	95%
4	CO-5	SCEX070.0COM	3/4	13	85%
4	CL-8	SCEX100.0CLA	1	21	100%
5	OBS-43	SCEX450.1OBS	5/6	27	96%
5	CO-9	SCEX110.0COM	5/6	27	96%
5	UST-15	SCEX170.0UST	5/6	26	77%
5	UST-16	SCEX180.0UST	5/6	26	12%
5	UST-17	SCEX190.0UST	5/6	26	38%
5	UST-18	SCEX200.0UST	5/6	27	4%
5	UST-19	SCEX210.0UST	5/6	25	4%
5	UST-20	SCEX220.0UST	5/6	21	48%
5	UST-21	SCEX230.0UST	5/6	21	0%
5	UST-22	SCEX240.0UST	5/6	23	17%
5	CO-7	SCEX090.0COM	5/6	24	0%

TABLE J-2 (Continued)
SCIENCE OBJECTIVES VALIDATED WITH STUDENTS ON A DIFFERENT GRADE LEVEL

Objectives			Student		
Level	Number	Code	Grade	# Attempted	% Mastered
5	OBS-41	SCEX430.1OBS	5/6	25	40%
5	OBS-42	SCEX440.1OBS	5/6	19	47%
5	CL-13	SCEX150.0CLA	4	17	94%
			5/6	23	48%
6	CO-12	SCEX140.0COM	8	1	100%
9	IDV-11	SCSX130.0IDV	8	18	78%
9	IDV-12	SCSX140.0IDV	8	25	76%